IMPOVERISHED IMAGINATION: A POSSIBLE MECHANISM FOR TELEVISION-INDUCED AGGRESSION

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TABLE OF CONTENTS

ABSTRACT

While there has been much research investigating the consequences of viewing media violence, there is comparatively little research on the antecedents of viewing it. Television relies primarily on visual imagery but as yet there has been little research concerning viewers' visual imagery ability. It is hypothesized that viewers with vivid visual imagery have, in contrast to non-vivid visual imagers, the skills necessary to manipulate violent images of real events and distance themselves from them. Thus it was predicted that non-vivid visual imagers would show more elevated physiological and emotional responses to real violence. If physiology is a substrate of aggression then features that have been seen to change levels of behavioural aggression in previous studies should have similar effects on physiology. Previous research has suggested that it is real rather than fictional violence that has the greatest effect on viewers (Berkowitz & Alioto, 1973; Geen, 1975). It has also been suggested that increases in physiological activity can have an intensifying effect on emotional states, giving it "visceral quality" (Schacter & Singer, 1962; Reisenzein, 1983). Thus it was predicted that real violence would produce the greatest increases in both physiology and negative mood experience. In a series of four experiments 140 participants' heart rates, electrodermal activity and mood states were assessed in response to differing types of film violence. As predicted, participants' physiological responses, particularly heart rates, were more elevated to real violence, an effect that was reflected in negative mood ratings. Variables such as violence-justification and the type of violence were also seen to yield differential physiological activity. There was also evidence, as predicted, that non-vivid imagers were more physiologically reactive to real violence than high imagers, although this was not reflected in mood rating differences. These results suggest that physiological responses are a fundamental component of aggression and that they play an important role in determining the level of emotional experience. Individual difference factors

such as visual imagery ability also play an influential role in shaping responses to media violence.

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Chapter 1

The pan of the camera: The field of media violence.

1.1 Introduction

Since the advent of 'talking pictures' , attention has been drawn to the possibility that directly viewing violent actions both on the television (Hennigan et al 1982 ; Gunter 1986) and at the cinema (Charters 1933 ; Dysinger and Ruckmick 1933; Klapper 1949) could have undesirable effects on its audiences. Perhaps at the present time such research is even more crucial. Television sets are installed in nearly every home in western Europe and the United States; the latter part of the 1970s and early the 1980s saw the introduction and consolidation of the home video recorder (and the availability of liberally censored and more explicit films) and presently we have witnessed the hard sale of cable television and the consolidation of rock video. Violence is thus easily and readily available for public consumption and most if not all of these systems maintain if not encourage a market for the portrayal of aggression.

Cumberbatch (1991) reporting on worldwide survey results reported in 1986 comments that in America "..violence on television has tended to fluctuate at a rate of between 5 and 6 violent acts per hour in dramatic fiction where roughly 80% of the programmes contain some violence". Yet in comparison "the lowest rate reported has been for the United Kingdom where only 56% of dramatic fiction programmes contained violence and the rate was one half that of any other country on which comparable data exists at only 2.5 violent acts per hour". The results fail however to disclose if the data was taken from television schedules solely or included video input to. These results also fail to disclose the severity or indeed the degree of realism of the violent acts, such that though there may be fewer acts on our own television screens, these acts may well be more violent in comparison to those acts shown in other countries. It would be better to study such effects within each individual country, taking into consideration the diversity of world societies, rather than to generalize the findings of one country worldwide.

Gandy (1981) commenting on American television has suggested that there is violence on television because the networks have determined that it is an efficient technique for increasing audiences. Indeed George

Gerbner and his associates at the University of Pennsylvania stated that seven out of ten prime-time television programmes in the United States depicted some form of violent action (Berkowitz 1993). Even music videos are becoming associated with more violence. Sherman and Dominick (1986) examined the extent of violence in music videos and found that 81% of them contained violent acts or violent imagery.

Violence is commonly presented in the news. John Whitney, Director General of the Independent Broadcasting Authority (IBA), defended the proliferation of violent news footage. He was quoted as saying that, "violence is a fact. It pervades our society. The presentation of news without the presentation of violence would render unintelligible much of what is actually happening in the world" (IBA News Release, 1987). While this may be the case it could also be true that by doing so, such news stories prolong the aggressive emotions that they may evoke within the viewer. Berkowitz (1993) admits that " ...the news media may have inadvertently given some violence-prone people aggressive ideas and may have helped to keep these aggressive thoughts and inclinations active..".

It could also be argued that in an attempt to boost their ratings, news sources have increasingly focused on violent and aggressive events as attention grabbers. Many of the lead stories seem to have hard hitting violent content. A problem that perhaps now faces the media is that the public may have come to expect news to be violent and as a result they may feel a little cheated if no such stories are included. This example seems to suggest that a 'chicken and egg' problem exists in the more broad area of the relationship between violence and the media.

Media sources do provide entertainment, learning and recreation to their users. Media messages and services are selected for a variety of intrinsic gratification's and utilities by the user. The television has undoubtedly become of high recreational value to many people. Viewing can also be rewarding in itself. It can combat loneliness and provide an alternative to boredom or it can instigate an escape from the pressures of daily life. This reliance on the entertainment provided by the television, cinema or home video recorders (visual media resources) could have important behavioural side effects.

Wober (1988) has suggested that there are five models of assessing television as a whole. There are the domestic and daily discussions among the public and then there are audience satisfaction and programme appeal surveys, and surveys concerned with audience size. These three are of particular interest to the network managers and advertising bodies and are primarily concerned with popularity of individual programmes. The two other models that Wober has proposed are interested instead on the contents of programmes and the possible effects they may have (positive or negative) on the viewers who watch them. These two types of assessment, critical studies and effects studies, are usually conducted by social scientists. It is within these two models of assessment that the question of the effects of media violence arises. As Wober (1978) has suggested: "if television is a major source of stimulus, and much of its content is of violence, the ways in which such violence may function psychologically, socially and politically are clearly major topics for academic and applied research".

Of the main critical accusations that have been generated by such research, one remains dominant. The notion that violence may pervert our behaviour is a vital issue concerning our psychological welfare. Indeed a major question for psychological investigation is the hypothesis that viewing television violence increases violent or aggressive behaviour in the viewer.

1.2 What is meant by aggression, violence and anger ?

Before we explore the television-violence issue further it may be worthwhile for a future frame of reference to consider what is meant by aggression, violence and anger in relation to this area of research. Perhaps the most workable distinction between aggression and violence and one which will be adopted throughout this thesis is presented by Berkowitz (1993). He states that "the term 'aggression' refers to some kind of behaviour, either physical or symbolic, that is carried out with the intention to harm someone', such mistreatment must be an intentional effort to hurt someone, whereas violence refers to 'an extreme form of aggression, a deliberate attempt to do serious physical injury.' While aggression always involves an intention to cause harm, it isn't always portrayed as the main objective in the media. Characters in

films/programmes often have other goals more important to them than the actual act of harming another. As Berkowitz maintains "a soldier may want to kill his enemy, but his wish may stem from a desire to protect his own life, may be to show his patriotism, or may be a means of gaining approval of his officers and friends."

It is thus important to also define what we mean by 'anger', while a person can be aggressive or violent they can also be or feel angry. This third term is most important when assessing the effects of media violence on viewers. In contrast to aggression and violence, anger (as will be used in this thesis) does not have any specific goal, but refers to a particular set of feelings. Anger as an experience does not directly instigate aggression or indeed violence but usually accompanies it. However the anger experience and the aggressive act do not always manifest themselves together. Someone can try to harm another impulsively without being consciously aware of themselves as angry. Berkowitz (1993) maintains that these feelings "stem in large part from the internal physiological reactions and involuntary emotional expressions produced by the unpleasant occurrence - the motor reactions (clenched fist),facial changes (dilated nostrils and frowning brow) and so on - but are probably also affected by the thoughts and memories that arise at the time." A viewer can watch a violent film and may subsequently feel angry without necessarily becoming aggressive.

1.3 Media violence: a question of 'causal effects'.

Public opinion polls suggest that when people are asked whether they feel there is too much violence on the television, 60% agree that there is (Cumberbatch 1992). Ridley-Johnson, Surdy & O'Laughlin (1991) reported that surveys of parents in America were concerned that television violence contributes to fear/passivity as much as they were that it contributes to aggressiveness. Yet it has been difficult, at least via examination of public opinion, to pin-point any particular sources of such violence. "When asked to judge whether particular programmes are too violent, only a minority agree that any particular programme is too violent" (Cumberbatch 1991). Thus while concerns about television violence undoubtedly exist, they are rather difficult to quantify via public opinion alone.

From my own review of the literature, the association between television violence and viewing it, seems particularly robust, and social scientists have attempted to specify which factors mediate this relationship. "The study of this area appears in every introductory textbook" (psychology) and " has serious implications for social policy" (Freedman 1984). Television violence could have far-reaching social and behavioural implications. For example television violence may expose children to aggressive scripts during their socialization process. Subsequent exposure to other screen violence may cue the retrieval of these learnt scripts and to the display of aggressive behaviours. It could also affect viewers' attitudes through the stages of desensitization or arousal. Yet it must be remembered that exposure to such violence would not in itself be sufficient to make a viewer aggressive. A combination of important factors (arousal, mood, individual differences, subsequent frustration etc.) is probably necessary for this to happen. The question of what role television violence plays in this relationship is of critical importance to the psychological understanding of human aggression.

Over the last twenty years, research has been dominated by the question of whether a causal relationship exists between viewing screen violence and aggressive behaviour. A whole myriad of differing indices of both violent programming and aggressive behaviour have been utilized in the exploration of the instigational qualities of media events. Sex differences (Fenigstein 1979; Turner, Hesse & Peterson-Lewis; 1986), social class (Wotring and Greenberg 1973), intelligence (Waters & Willows 1968), age differences (Thomas 1972), cultural background (Broncato 1974), and their relationship to viewer aggressiveness following observation of a violent film, have all been investigated. Does the nature of the violence, either real or fictitious (Berkowitz & Alioto 1973), with or against persons or objects (Hanratty et al 1969 ; Bandura et al 1963), in its contextual existence (Berkowitz & Rawlings 1963; Geen & Stonner 1973), or the type of violence portrayed (Zillman et al 1973) have a direct effect on the strength and even direction of the proposed relationship? Environmental factors such as audience effects (Dunand et al 1984), and temperature (Anderson 1989) have also been investigated in the quest for better understanding.

Despite many diverse investigations, no clear answer has as yet been found. Andison (1977) in a review of 67 studies from 1956-1976 reported that 71.2% suggested a weak to moderate positive relationship between watching televised violence and subsequent aggressive response. Only 5.5% of results were seen to suggest a strong link in such a relationship. In contrast 19.2% found no relationship and 4.1% even found evidence to suggest a weak negative relationship.

The area, as in many fields of social and psychological research, is not without its share of controversy. There are those who would maintain that research strongly points to a causal effect (Comstock & Strasburger, 1990; Evans & McCandless, 1978; Huesmann, 1982; Liebert & Sprafkin, 1988; & Turner, Hess, Peterson-Lewis, 1986), those who are less convinced (Armour 1975; Freedman 1984; Kaplan & Singer 1976; Lynn, Hampson & Agahi, 1989; McGuire, 1986) and still those who seem as yet uncommitted to either the 'pro' or 'anti' lobbies (Loye, Gorney & Steele, 1977). As we shall see in Chapter 3, the argument surrounding which methodological design is best suited to media violence research has widened these rifts still further.

Though the findings are inconclusive, inconsistent and contradictory, a number of theories has nonetheless been formulated and important observations yielded by some of the researchers.

Investigative research into the effects of media violence has encompassed both laboratory and field work. Researchers have utilized two main subject pools for their investigations, children and adults. Like many areas of psychological debate, theories and explanations have been voiced from the main sub-disciplines of this science: Behavioural, psychophysiological and cognitive. A review of theoretical viewpoints within the three methodological domains and a brief discussion of relevant research findings now follows.

1.4 Experimental investigation into theories of television violence

Laboratory research findings.

The first serious scientific observation of the effects of television violence can be traced to the work of Seymour Feshbach (1955, 1956, 1961) and Alberta Seigel (1956). These initial experiments were field-based experiments and primarily concerned with possible harmful effects of violent programmes on children. Results from Feshbach's work suggested a weak negative relation between television violence and subject aggression and his studies provided the basis of the symbolic catharsis theory of television-induced aggression (see later). In contrast the early work reported by Seigel suggested a weak positive relationship.

Social Learning Theory

When the issue was once again addressed in the early 1960s field work had been largely forsaken for laboratory research. It was from this work that the first major theory of how television violence might elicit subsequent aggressive behaviour emerged (Bandura & Walters, 1963). In what was called 'Modelling Theory' it was suggested that observed violence could facilitate mimicking or copying behaviours in children who have been exposed to it. Thus vicarious learning was the crux for this theory. Bandura postulated that children, "... learn the components of their personality from experiences and interactions with their culture, family, peers etc..... and that modelling plays a uniquely important role in the child's social development" (Bandura & Walters 1963). Nursery-school children who observed an adult acting aggressively towards a large inflated doll, either directly or via televised examples, subsequently imitated many of the adult's actions, including unusual ones. The studies that followed yielded results consistent with Bandura's hypothesis and allowed extensions to be made to it (Bandura et al 1963; Bandura, 1965).

Parton and Geshuri (1971) also experimenting on Bandura's theory, revealed that adults were more likely to be imitated when they were

more vigorous in their aggressive acts. Dubanoski and Parton (1971) revealed that the adult model gives the children a direct observational chance to learn the shown motor responses acted by the adult. In experimentation they reported that children did not copy free floating weapons as much as they would live adult models. Eisenberg (1980) reported that aggressive imitation was further reinforced in the observing child when an adult who made approving statements regarding the violent acts was present in the same room as the child. Indeed Leyens, Herman and Dunand (1982) also indicated that the mere presence of others, depending on their attitudes, could provide behavioural incentives to the child to either act out the witnessed aggression or to suppress it.

However the 'modelling' or 'social learning' theory explained only the acquisition and performance of imitative aggressive acts. It also did little to explain media violence and its effects on adult behaviour. More over Bandura failed to examine the processes involved in the formation of mental representations of violent acts, nor did he address the content of such representations. Also, because of the ethical and measurement problems inherent in using children as subjects, there are methodological flaws in many of these experiments. Some of the measures employed to measure aggressive responding could actually encourage its manifestation. The inclusion of a life size inflatable toy in any study, in my opinion, enhances aggressive responding. There is little else one can do with the toy. Even its shape is similar to that of a punching bag. The mere presence of such apparatus signifies that the experimenter is allowing its usage and therefore tolerant of aggressive actions. More recent cognitive theories have allowed consolidation of Bandura's initial research findings and more detailed analysis of how media violence could affect subsequent behaviour.

Cognitive Theories

The disinhibitory theories of media aggression claimed recognition and integration of other phenomena important to the media-violence relationship. These cognitive-associationist theorists proposed that the observation of an aggressive or violent act subconsciously releases the inhibitory bonds around the aggressive response. Berkowitz (1984)

proposed: "the aggressive ideas suggested by a violent movie can prime other semantically related thoughts, heightening the chances that viewers will have other aggressive ideas in this period". Such theories have tended to concentrate on the content-related mechanisms in relation to film violence and have used mostly teenagers for their subject pools.

Such an effect seems evident in a number of experiments where a subject, having witnessed a scene from a prizefight, responds with more intense verbal hostility against a protagonist or with high levels of electric shock (e.g. Berkowitz & Geen 1967; Wotring et al 1973). Therefore aggressive or violent actions witnessed on television could activate experiences, ideas, attitudes or behaviours associated with them when the necessary cues are available following the original exposure. Whereas social learning theories had accounted for the acquisition of aggressive scripts, thoughts or emotions, the 'priming' theory proposed by Berkowitz held possible explanation as to why people perform other aggressive acts to those they have witnessed.

Indeed this cognitive theory could also provide an explanation of both the 'weapons effect' (Berkowitz & LaPage 1967) and 'association effects' where viewing weapons has been shown to elicit aggression. The weapons effect is a phenomenon by which those viewing visually-presented weapons appear to associate them with their function (producing death or injury) and as such activate associative aggressive ideas (Turner & Goldsmith, 1976).

A similar pattern has been seen with other 'associative' stimuli. For example, it has been reported that when a protagonist shares a similar characteristic with a losing contender (such as a name), he/she is also aggressed against to a greater degree than when there is no associated connection (Berkowitz, Corwin & Hieronimus, 1963; Berkowitz & Geen, 1967; Donnerstein & Berkowitz, 1983; Boyanowsky et al, 1974; Josephson, 1982). Thus these cognitive effects could well be explained in terms of 'encoding specificity' (Tulving & Thompson, 1973) in which one emotion or reaction creates a specific cue for retrieval of similar emotion or reaction.

Huesman (1982, 1986) has extended cognitive based research by adding an information-processing element to it. Huesman has suggested that children create and store algorithms which are based on observing others' behaviour. Continued exposure to scenes of violence could lead to specific algorithms for aggressive behaviours, which he argues could be recalled if a retrieval cue were presented. This could lead to the expression of an aggressive act learned from the television in new circumstances with only minor similarities to the original televised situation. Berkowitz (1986) has also opened another avenue of cognitive research. He has hypothesized that aggressive thoughts and emotions are 'primed' by the observation of television violence. Indeed this is similar to Bower's (1981) work on memory. Bower maintains that memory is represented as an interconnecting network of pathways. When one path is activated, activation spreads to related pathways. Thus television violence may prime other aggressive ideas and emotions via " semantically strengthened pathways" (Josephson, 1987).

Support for the existence of these cognitive processes is derived from research which has reported that when subjects' attention is diverted from a film's violent context to its more artistic nature, subjects are subsequently no more aggressive than when they view neutral films (Turner, Simons, Berkowitz & Frodi, 1977; Leyens, Cisneros & Hossay, 1976). This observation is also seen during the weapons effect. Subjects attuned to the more aesthetically-pleasing qualities of the presented weapons (craftsmanship etc.) exhibited no more aggression than if they were given neutral objects (Turner, Simons, Berkowitz & Frodi, 1977). Thus as Berkowitz (1986) suggests, "it may be possible to reduce the aggression-inciting capacity of violent communications without imposing censorship by teaching viewers to concentrate on the aesthetic or physical aspects of the movies they watch". This suggestion may be more related to an 'ideal world' rather than the real one in which we live. As we shall see shortly from the work on emotional arousal, Berkowitz has rather naively presumed that viewers do not actively select the programmes they wish to watch. That they are instead passive recipients of what is presented to them via the television. Yet they do obviously select the programmes they wish to watch. Concentrating on the aesthetic qualities of the programme will negate the very reason why they have chosen to watch the programme or film in the first place.

Other researchers have emphasized the content of screen violence and have focused their own research on the contextual and informational aspects of media violence. Thus these experiments shifted attention away from the internal processes of the viewer towards the external input from the differing types of media violence, in other words, to what effects the individual characteristics of violent media programmes had on its viewers. Thus while provocation may dispose them to have aggressive thoughts, feelings and action tendencies, such reactions could easily be strengthened and encouraged by what they perceived from contents of the programme or film.

The most significant finding in this research indicated that viewers could well be more affected by violent scenes they regarded as having actually happened as opposed to incidents they perceived to be purely fictitious(Feshbach, 1972; Meyer, 1970; Berkowitz & Alioto, 1973; Geen & Rakosky, 1973 and Geen, 1975). This finding fits nicely alongside the cognitive research. It could be that 'real' violence is a more dramatic cognitive stimulant. If an event is considered to have actually occurred it may receive more attention and may, for whatever reasons (eg: familiarity with the events, identification with the victims or aggressors) trigger cues that result in both physiological and emotional arousal. It has been reported that it is the observation of realistic television violence that could have the most damaging effect on children's subsequent behaviour and emotions. Garry (1967) reported that westerns were reportedly less disturbing to children than crime and detective shows which were closer to real. Chaney (1970) also found that in twelve-year-old boys those who were more highly involved in the aggressive aspects of the program content were also more likely to believe that the programs that contained the most violence were also the most realistic. Thus this attention-grabbing characteristic of real violence could in turn elicit associated aggressive emotions and thoughts and instigate greater physiological responses, all which, in turn, could heighten the likelihood of aggressive responses.

However subsequent research investigating the impact of television exposure on cognitive processes, particularly those concerning viewer attention would advise caution about the above hypotheses. For it has been shown that it may not be the violence itself which is the main

cognitive stimulant in holding viewer attention. Research by Wright and Huston-Stein (1981) have investigated the extent to which perceptually salient formal features (fast pace, action, sound effects) attract and hold the attention in children. These studies have reported that these features do indeed attract attention. They are also seen as complementary to Diener's and De Four's (1978) earlier work which reported that programs from which violence had been edited were seen as less violent, but not liked any less, than the uncut versions. This suggested that there is no relation between popularity and amount of violence occurring in television programs.

Other cognitive factors influencing the violent media - aggression relationship have also been examined. The literature suggests that attributions and moral evaluations contribute to the extent to which aggression will be inhibited (Berkowitz, 1984; Ferguson & Rule, 1983; Rule & Ferguson, 1986).

Attributional and evaluational information is conveyed in nearly all violent programs as to whether and when aggression is appropriate. When the 'bad guys' are punished and beaten in many such programs, the violence utilized by the 'good guys' to achieve this victory is often portrayed as justifiable. It has been shown that the 'good guys' usually display as much violence as do the 'bad guys', but when such violence is used by the 'goodies' they receive praise (Stein & Friedrich, 1972). As Rule and Ferguson (1986) have commented "these results imply that the content of many of our shows have a reverse effect than that intended - I.e.: rather than inhibiting aggression, these programs serve to facilitate it". So that viewers attribute the 'good guys' violence as a justified means to an ends and that their own aggression can also be permissible as long as it achieves the same justification. Indeed studies have shown that viewers subsequent aggression is increased after they observe aggression directed towards a victim portrayed as deserving such attacks (Rule & Nesdale, 1976). Interpretations of moral justification is as equally important in the above example.

Violence presented as morally justified, as opposed to morally unjustified, has been seen to elicit higher levels of aggressive response (Berkowitz & Geen, 1967). Viewers perception of the overall motives of

the observed aggressor has also been seen to have important internal influences on subsequent attitudes, emotions and behaviour. The motive of vengeance in some cases has been construed as morally justified by many subjects and has been reported to elicit more aggressive responding from an observer (who had been previously angered) than the same violence attributed to other motives (Carpenter & Darley, 1978; Geen & Stonner, 1972).

Attitudes towards, and tolerance of aggressive acts have also been studied. Huesman et al (1984, cited in Rule and Ferguson, 1986), suggested that the media violence viewing-aggression relationship could well be influenced by viewers prevalent attitudes toward aggression and the justification for aggression. they found that the frequency of viewing was highly related to viewers' present aggression levels and attitudes to aggression and predicted future aggression. Research has also found that tolerance levels towards aggression could be important in subsequent reactions to it. Malamuth and Check (1981) reported that men exposed to programs depicting and justifying sexual violence towards women increased their acceptance of it. Indeed this is in support of one of the proposed main effects of media violence on our emotions. That is that repeated exposure to media violence reduces viewer emotional sensitivity through emotional habituation and gradually emphasizes the normality of the witnessed aggression (Thomas et al, 1977).

Physiological Theories

Other research has suggested that the observation of violence may produce an aggressive response by causing increases in autonomic arousal (heart rate, blood flow, electrodermal activity). Research on media violence using psychophysiological techniques was introduced in the late 1960s. In a study by Geen and O'Neal (1969), after initially watching either a prizefight or a neutral film, subjects gave electric shocks to another person in the context of a judgment task. While in the process of administering these shocks some of the subjects were given noise of moderate intensity , and others no noise at all. Subjects aroused by the noise were reportedly more aggressive after seeing the aggressive film than after seeing the non-violent film.

Tannenbaum and Zillman (1975) have suggested that "increments in emotional arousal serve as the primary basis for the aggressive film effect". They contend that arousing communication in any form can have effects similar to those documented for aggressive films.

Geen and Thomas (1986) also suggested that increased arousal raises a persons overall activity level (both physically and mentally I would presume) and this in turn increases the likelihood of any response. In situations of provocation it was suggested that "arousal caused by media portrayals of aggression may also be mistaken for anger in situations involving provocation" (Geen & Thomas, 1986). This in turn would lead to anger-motivated aggressive responses. A third suggestion is that media elicited arousal, if particularly strong, was adversive to the observer and could lead to aggressive behaviour as other adversive or painful stimuli have been shown to do (Berkowitz, Cochran & Embree, 1981).

Zillman (1971) has postulated a further possible role for arousal in the elicitation of aggression following the observation of film violence. He showed his male subjects either an erotic, violent or neutral film prior to being given the opportunity to aggress against a protagonist who had previously provoked them. Zillman found that the erotic film elicited greater physiological arousal in his subjects than either of the other two. He also observed that those subjects who had been previously provoked and who had seen the erotic film were more aggressive than their counterparts. Zillman concluded that "the arousal produced by the movie was incorrectly attributed by the subject to the provocation, so that some of the arousal due to the movie was perceived as anger". Cognitive factors also seem to influence physiological reactions to media violence. Zillman, Johnson and Hanrahan (1973) have reported that the ending of a film can also effect subsequent viewer behaviour. Subjects who had seen 'happy endings' were reported to have experienced less overall arousal and were seen to be less aggressive than their 'tragic ending' counterparts.

In later work Zillman (1979, 1982) suggested that arousal plays some form of mediator role between violent media exposure and subsequent aggressive behaviour. Zillman has also proposed that such exposure

maintains (and does not facilitate) levels of pre-exposure arousal. That is that a persons' arousal level is already elevated prior to watching violent programs, perhaps some form of preparation effect. Studies have shown that exposure to a neutral, as opposed to an aggressive film condition does reduce aggression (Zillman & Johnson, 1973; Donnerstein et al, 1976).

Individual Differences

More recent research has taken a further step away from the source of the observed violence (television, cinema) and investigated the input of the viewer as an element in the media violence equation. This has focused on the possibility that it is the individual's personality characteristics (individual interpretation, aggressiveness, etc) that are the mediating factors in aggressiveness following media violence (Diener & DeFour, 1978; Frost & Strauffer, 1987; Wober, 1986). This work will be discussed in detail in the next chapter.

Catharsis

In direct contrast to those who contend that observing media violence does indeed cause increased levels of aggression, there is a smaller body of research which suggests that observing media violence may actually be beneficial to its viewers. Feshbach (1955) found that males who had been instigated to aggress against an earlier protagonist , and who subsequently watched a prizefight, were less hostile in their verbal appraisal of the insulting person than were similarly provoked men who watched a neutral film. Such a difference was not evident among men who had not first been insulted. Feshbach based on this observation, suggested that the aggressive film had produced a draining off, or catharsis of hostility in the previously provoked subjects.

Subsequent results from examination of Feshbach's findings were conflicting. Paradoxically, Feshbach (1956) could not replicate his earlier findings. Doob (1970) found decreased aggressive responses as a results of prior aggression. The examination of real aggression on measures more related to hostility than aggression yielded more consistent results comparable to Feshbach's initial study. Berkowitz et al (1962) reported

aggression groups showed less hostility than controls not permitted prior aggressive responses.

In accordance with this view Feshbach and Singer (1971) presented a modified formulation of the catharsis hypothesis. They suggested that the media serve to stimulate fantasy and that such fantasy could act to reduce aggression in several ways" : It may reduce the arousal level of an angry individual. For example if a person can sufficiently punish a nagging family member in their thoughts, they will feel less desire to punish them in their actions. Or if the individual is rewarded often enough for fantasy aggression, (I.e. by gaining satisfaction from their mental images) "they get into the habit of using fantasy aggression to" cathart "their aggressive feelings... and are less likely to behave aggressively" (Liebert, Sprafkin & Davidson, 1982). Feshbach and Singer's subsequent study (1971) of the existence of such a cognitive release mechanism, although tarnished with methodological flaws, did yield results compatible with their hypothesis. Yet few studies to date have reported similar findings and the support for the 'cathartic effect' of media violence remains weak. Many studies utilizing cathartic techniques have reported that it has little effect upon reducing subsequent aggressive responding (Mallick & McCandless, 1966; Turner & Goldsmith, 1976).

Thus evidence from laboratory-based research seems to suggest that (taking into account other factors such as personality and environmental factors) a causal relationship does exist between the observation of media violence and subsequent increases in the viewer's immediate aggressive emotions. However the nature of this relationship is still contentious. Whether viewer aggression is derived from the contextual elements of the programme, the effects of cognitive processes, influences of personality or the environment remains uncertain. More likely, it is a multi-factor process including all the above suggestions and, as yet unobserved, other factors.

Field research findings

In field studies subjects have been exposed to varying kinds of television or film violence and have been assessed for any subsequent aggressiveness in relatively natural settings. In contrast to the laboratory based experiments, the field studies have assessed effects over a more substantial period of time, days or weeks rather than minutes. The measures of aggression they have utilized have been based on the observation of actual aggressive behaviour.

The evidence from the field research is more mixed. Some seem to corroborate the experimental findings of an increase in aggression (Parke, Berkowitz, Leyens, West & Sebastian, 1977: Wotring & Greenberg 1973) while others do not (Milgram & Shotland, 1973; Feshbach, 1972; Kniveton, 1974).

The field studies of the seventies were later criticised for their designs and methods of analysis. Feshbach and Singer (1971) randomly assigned a diet of either violent or non-violent programs to boys in seven residential schools over a period of seven weeks. Results suggested that boys who had watched the non-violent programmes were more aggressive. However caution was later advised in the interpretation of these results. Boys in the non-violent condition were, after complaining, permitted to see episodes of "Batman" which contains many fight scenes. This could have influenced the later observation of aggressive behaviour. The main criticism was that the effect was significant in only the schools for delinquent boys. Yet in fairness it should also be noted that not one of the seven schools showed any negative effects from watching the violent programs.

Studies which followed were also marred with methodological flaws. Leyens et al (1975) observed institutional secondary school boys in four cottages. Two of the cottages saw violent films every night for a week, while the other two were given neutral films instead. One of the violent film cottages showed an increase in general aggressiveness; while the other showed only an increase in physical aggression. Of the two neutral cottages, one showed a decrease in overall aggressiveness, the other showed no change. Yet again the interpretation of the data is

problematic. The boys, because of the nature of the cottages were highly dependent on one another and any aggression shown by one boy would involve the others in the same cottage. Yet the authors inappropriately treated the boys as independent subjects during the statistical analysis.

This statistical error was also made by Parke et al (1977) and made worse by the fact that only two cottages were used in this study. Results from this study reported that the violent cottage were more aggressive than the neutral cottage during the film week and that in the following week it was those boys who were rated as having high-aggression who continued to show higher levels of aggressiveness. More interesting was the observation that low-aggression, non-violent boys also showed elevated levels of general aggressiveness in the subsequent week.

Milgram and Shotland (1973) performed a series of nine field studies which challenge the Social Learning approach to television violence. These studies investigated whether people watching someone commit a anti-social act on television would increase the likelihood that the viewer would commit the same or similar act. In one study, subjects who attended a theatre to watch a programme were promised a radio for their effort. The program either depicted an individual breaking into a charity box or leaving it alone. Subjects were then instructed to attend another building at an arranged time to collect their radios. When the subjects attended the room a notice had been posted informing them that the radios were no longer available. A charity box, clearly filled with money was positioned near this poster. This study found no significant effects of program type on anti-social behaviour. No evidence was observed to suggest that people imitate antisocial acts observed on the television, at least not within the context of a University experiment.

Loye, Gorney and Steele (1977) took the field study into the very homes of married couples. Husbands were assigned to watch one of five diets of programs over a period of a week. These included programs high in pro-social content; high in violent content; high in both pro-social and violent content; neutral programs and those normally watched. Wives were asked to observe their husbands' behaviour and rate them on various scales. Subsequent effects were weak. Those in the violent condition were reported as slightly more aggressive, those in the pro-social as less

aggressive and those in the other conditions not changing. None of the individual changes were significant. Though highly original this study, once again, is marred by design flaws. The wives were not trained in observation, and watching television while being assessed is far from 'natural'. There are also high experimenter demand effects evident in this kind of situation.

More recently, Gerbner et al (1986) postulated the existence of what he calls the 'cultivation thesis'. This maintains that for children the exposure to such a high level of visual violence has a detrimental impact on their conceptions of the people and environment about them. Gerbner and his colleagues argue that the frequent depictions of violence and negative emotional expression on television 'cultivates' a long-lasting impression of the world as untrustworthy and wicked, where violence is part of everyday life. However Berkowitz doubts that this 'cultivation' thesis is as widespread as Gerbner implies. Instead he maintains that "the truth may be, then, that television can influence one's general beliefs about the surrounding world but that the cultivation effect is fairly modest across the television audience as a whole" (Berkowitz, 1993). Others also hold skeptical views of this cultivation thesis (Rule & Ferguson, 1986; Cook, Kendzierski, & Thomas, 1983).

There have also been "natural" experiments on the effect of violent television. Hennigan et al (1982) assessed the introduction of television into American communities and indicated that no significant increases in violent crime was evident. In contrast studies of its introduction to remote Canadian communities yielded an increase in reported physical and verbal aggression (Joy, Kimball & Zabrack, 1986). Yet both these studies focused almost exclusively on the most extreme of violent behaviour and criminal acts. Such a focus has left other important antisocial and criminal behaviour relatively unexplored.

David Philips investigated whether there was any indication that factual news reports and television programmes in general had any socially detrimental effects on the audience. He began his studies by investigating whether there were any imitative suicides. Over a 20 year period he established some 35 nationally reported suicides in America, and via official records determined the number of other national

suicides in the month before each story, the month of the reported suicide and the month following it. His data suggested that in the month that the media reported suicide took place national suicide rates increased significantly more than would have ordinarily been expected. He repeated his work in the United Kingdom. He again found that widely publicised suicides led to a similar rise in British suicide rates (Philips 1974).

In a more renowned study, Philips (1983) addressed the impact of heavyweight prizefights on homicide rates in the United States. He monitored homicide levels before and after such prizefights had been televised. He reported that following such screenings homicide rates increased by 12.46% and that the effect was greater for heavily publicised fights. Yet no effect was seen when the football Superbowl was televised (the most highly publicised sports event in the United States). It could be that dramatic effects (such as prizefights) could have surprisingly powerful effects on the viewing public.

Philips work suggests that a proportion of the viewing population, albeit small, obtain violent ideas from both the television and newspapers of these aggressive events and subsequently translate these thoughts and ideas into violent actions.

As can be seen field research has yielded contradictory results. Research involving such methodology in natural settings is problematic and this may well have encouraged such a disparity in research findings (see chapter 3 for more details). Freedman (1984) agrees that as far as field research is concerned, "it has been extremely difficult to demonstrate an experimental effect that lasts for any substantial period of time".

Correlational research findings

A third, smaller body of research using correlational techniques has also investigated the effects of media violence on viewer behaviour. These studies have related measures of viewing violent television with measures of aggressiveness.

Hartnagel, Teevan and McIntyre (1975) obtained self-reports on subjects' four favourite television shows and their own violent behaviour. A small positive correlation of .12 was reported between violence of the favoured shows and self-rated violent behaviour.

Belson (1978) analysing data collated from interviews with over 1,500 adolescent boys, reported that boys who watch more violence tended to commit more aggressive acts. Yet this study failed to separate the watching of violent television from the amount of television watched.

Eron (1982) and Huesman (1982) conducted a series of studies in four countries (United States; Finland; Poland and Australia) using both boys and girls. Correlations between viewing television violence and aggression from samples in the United States were substantial at all grades of schooling for both sexes and ranged from .16 for boys at Grade 1 to .294 for girls at Grade 5 (Freedman, 1984). It was also seen that in all grades correlation's were consistently higher for girls than boys. in the other three countries were less consistent, with boys having higher than girls in both Finland and Poland. The data did seem to suggest that increased with age. Yet data by Singer and Singer (1980) indicated that there was no tendency for to increase with age.

Yet as with any correlational study the results, though they may indicate a relationship between one factor and another the relationship is uninterpretable - it is unclear which factor is influencing which factor. Thus though the above data may report positive between aggressive behaviour and viewing television violence it does little to tell us which causes which. Do aggressive people watch more aggressive television or do people become more aggressive after watching too much aggressive television?

1.5 Main conclusions

Research based in the laboratory which has investigated the immediate effects of viewing television violence seems to suggest the existence of a causal relationship. Whether this relationship is centered on the contents of the observed violence or, in contrast, is more directly related to the individual's own assessment, evaluation and personality is still contentious. More likely a bi-directional relationship exists involving some if not all the processes reported.

Results from correlational research though suggesting an association between observing media violence and subsequent aggressiveness are not as strong as the laboratory work. Those studies whose findings have suggested a link have been difficult to replicate.

In contrast, field studies have revealed greater disparity and less striking sets of results. Some have found rather weak evidence for the increase of aggressiveness following exposure to media violence, while the main body of research offers only the slightest encouragement for the causal hypothesis: "It offers little support to justify any conclusions which hold that viewing media violence has any effect on subsequent aggression" (Freedman 1984). Yet we should not forget the work of Philips (1974) who unlike many of the other studies reported in the field of television violence actually investigated real measures of violence (homicides and suicides).

From the existing literature there would seem to be an interaction between context and viewer characteristics. Television violence may cause aggressive behaviour in some people only, depending upon individual factors such as personality and emotional susceptibility. More recent research has addressed these issues as we shall see in the next chapter.

Chapter 2

Zoom in: New avenues of research

2.1 A refocus of media research.

In the previous chapter it was evident that the problem of violence in the media has attracted a great deal of scientific attention. While attention has focused primarily on the consequences of viewing media violence, there is comparatively little research on the antecedents of viewing it. The two should surely be related if not inseparable. Fenigstein (1978) has stated that " in order to understand the effects or mass media it is necessary to understand why viewers watch it and conversely to understand viewing behaviour the effects of mass media must be known".

Though the evidence for such a causal relationship seems to be positive, it does not provide a complete explanation of the aggression - television relationship. Eron et al (1972) wrote "a substantial portion of the variance in this relationship remains unaccounted for, and additional explanatory mechanisms are warranted". The existence of a causal relationship between observing aggression and increases in the viewer's disposition to aggress does not eliminate the possibility that other relationships also exist. This transactional conception of television violence is only one part of a complex system in which the viewer also has an active rather than passive role. It is the viewer that selects, processes and even influences the type of programmes screened. It is far more likely that an interaction exists between media violence and viewer characteristics. Fenigstein (1978) has proposed the existence of a positive feedback pattern in that aggressive emotions increase an individual's preference for viewing violence, which in turn increases aggressive behaviour.

It is only more recently that an active conception of the viewer has emerged. A good example of the need for this new approach can be seen when one reviews the experimental literature on media violence. It can be seen that the majority of research to date has been directed at investigating viewing violence as the independent variable. Little attention in comparison has been

focused on it instead as a dependent variable (whereby specific viewers seek to watch screen violence).

Indeed Gunter (1983) has suggested that in most of the experiments on the effects of media violence, people have been considered passive recipients of the mass media and its accompanying influences. Instead people should be seen as actively selecting and interpreting what they watch both at home and at the cinema. Such selection could not only be influenced by personal preference but also by events in the viewers' immediate environment. The greater the impact of the environmental stimuli the greater the chance that it can have an effect on the persons' behaviour. This point has been supported by earlier work by Doob and McDonald (1979) and by Boyanowsky, Newston and Walster (1974). Results from the Doob and McDonald study indicated that in areas of high crime rates, residents most worried and fearful of victimisation were those who both chose to watch greater amounts of crime programmes and showed a greater preference for violence. Boyanowsky et al found that, after a violent murder of a student, attendance at a local cinema showing a violent crime film rose sharply, compared to another nearby cinema showing a literary drama. This may not have been merely because it was a violent film, but more probably because the attacker is brought to justice at the end of the film and gets his come-uppance thus satisfying the audiences' desire for justice.

There is little evidence from either experimental or correlational studies that violence itself enhances programme popularity. Diener and DeFour (1978) showed male subjects a police drama with either the violence intact or edited out. No difference in viewer liking was found between the two versions. Sprafkin, Rubinstein and Stone (1977) also reported that the frequency of aggressive acts shown in 100 programmes did not correlate with subsequent viewer enjoyment levels. Other studies have reported similar findings (Liebert & Schwartzberg, 1977). Wober (1988) reported that it seemed to be the "more timid people, lower on

sensation seeking, higher on external locus of control, who view more action adventure".

It has also been shown by other studies that those individuals predisposed to aggressive states have subsequently preferred violent programmes in experiments (Diener & DeFour, 1978; Freedman & Newston, 1975). But what of the effects of other moods? Psychologists are aware that mood states often dictate both our behaviour and reactions to everyday activities, so they could also have a vital role to play in the media violence question. Goldstein (1972) found that subjects predisposed to an aggressive mood, by reading an aggressive prose section, showed the strongest preferences for subsequently viewing a violent film.

Other important questions in relation to viewers' emotions remain unanswered as yet. For example do violent films dispose the viewer to experience an increase in aggressive emotions even if they do not exhibit outward aggressiveness? Thus although viewing the films will not cause actual physical aggression on the part of the viewer, excitation of aggressive related moods could result in other spiteful acts such as verbal insults, heightened criticism, irritability etc. Are those viewers seen to experience the largest subsequent aggressiveness also those who experience greater negative emotional change to the film? That is, could they experience increases in other negative moods such as sadness, impatience or anxiety in reaction to the filmed violence? Such increases in these moods could provide motives for the occurrence of any subsequent aggressive action observed. Viewer's emotional negativity would be the driving force for the increased likelihood of negative actions (manifested as aggression under these conditions). Research has to date neglected these questions.

Other research has attempted to address the relationship between viewer aggressiveness and subsequent preference for viewing violent media. Diener and DeFour's (1978) study, though reporting that the violence on its own did not seem a potent factor in viewing liking, did report that those males who has scored high on personality aggression scales liked the violent version more. Atkin

et al (1979) provided survey evidence suggesting the existence of selective exposure to television violence. It was seen that viewers tend to attend to types of media violence which are supportive of their aggressive dispositions. It has also been observed that delinquent aggressiveness in late adolescence was associated with the amount of violence in favourite programmes (Robinson & Bachman, 1972 ; McIntyre & Teevan, 1972). Friedman & Johnson (1972) reported that aggressive students had more violent programmes as favorites. This proposition that viewers with more aggressive personalities watch more violence has more recently been supported by the work of Gunter (1982, 1983). He has indicated the existence of "a complex relationship between personal aggressiveness and viewing preferences whereby people characterised by particular kinds of aggressive tendencies may enjoy watching certain types of violent scenarios on television more than others" (Gunter, 1982).

2.2 Psychophysiological measurement and indices of behaviour.

An area deserving more attention is that of the effects of media violence on viewer physiology and the subsequent role of physiology in the interpretation of, and behavioural reaction to, such stimuli. Both physiological and mood scale indicators of how viewers respond and interpret media violence are needed for a more precise picture of any relationship that exists. The case for the need for more research using such indices of behaviour will be put in the following chapter. The limited experimental research using physiological measures has indicated that it is a powerful indicator of the types of media violence that have the biggest effect on viewer cognitions.

Physiological indices such as systolic blood pressure, heart rate, skin conductance and finger temperature have been those used as dependent measures in aggression research. Unfortunately, those studies that have utilized them, have tended to use them as auxiliary measures. Most of the experiments utilizing

psychophysiological measurement in the study of media violence have agreed that there seem to be no gender differences in arousal to violence. Bryant and Zillman (1984) reported no differences in heart rates of male and female college students as they watched 'exciting' and 'relaxing' television. Similarly Frost and Stauffer (1987) found no significant difference in either heart rate or skin conductance between males and females either in the combined sample or within separated college or inner-city samples. Experiments monitoring subjects' brain-waves have also reported no evidence for gender differences. Miller (1985) found no difference between males and females when examining cortical arousal (alpha and beta rhythm) in reaction to watching varieties of television programmes (including those on violence).

However arousal has been clearly identified as an underlying factor in aggression following film violence (Zillman, 1971; Berkowitz, Cochran & Embree, 1981; Thomas, 1982). Early postulations on the role of physiological arousal suggested that while arousal was generated by exposure to aggressive responding, it may in itself also augment aggressive responding. It was later suggested that, in contrast to the content-based explanations, any arousing communication regardless of their nature (be it an erotic film or physical exercise etc.) can have the same effect as those observed for aggressive films (Tannenberg & Zillman, 1975; Zillman, Hoyt, & Day 1974). Such implications are comparable with Schachter and Singer's (1962) two factor theory of emotions. One of their central suggestions was that we feel angry not because we sense our muscles tense or our pulses increase but because we are generally aroused. A good example of this is given by Zillman (1971). Zillman reported that subjects who watched an erotic film exhibited higher levels of aggression than they did after watching a less arousing aggressive film (Zillman, 1971). In other words the film (which was not violent) that had caused the greatest arousal also resulted in the greatest increases in participants aggressiveness.

However more recent research has indicated that the perceived content of the media violence can also influence viewer

physiological arousal and this supports the other suggestion by Schacter and Singer (1962). That is that we become angry when we are generally aroused and we also have certain cognitions about the nature of our arousal. As a good example it has been reported that media violence perceived as more realistic is seen to elicit a greater effect on viewer physiological reactivity. Geen (1975) found that subjects who had been told that a scene was real, compared to being told it was unreal, showed not only a more dramatic increase in subsequent aggression but also higher levels of blood pressure. Similarly Geen and Rakosky (1973) observed that when they informed subjects that scenes to be shown were fictitious, subjects reported them less arousing and had lower levels of electrical skin conductance than they did to similar violence labeled as real.

Frost and Stauffer (1987) also looked at the effects of different types of violence on viewers increased physiological activity in both college students and residents of an inner city housing estate. Ten excerpts from films each depicting one of ten different forms of violence (e.g.: male-male assault; male kills female; female kills male; female kills female etc.) were shown to all subjects.

Both blood pulse volume and skin conductance response (SCR) analysis revealed that inner-city residents were significantly more aroused by all violent scenes than the college sample. The mean amplitude of SC response to rape was 0.053 usiemens in college students whereas the inner city participants exhibited an SCR amplitude of 0.138. The type of violence was also highly significant indicating that both the samples arousal levels varied significantly to the different types of violence, such that the scenes of rape and female killing female caused the biggest response. The later event is perhaps the least commonly seen act of ultimate violence and would therefore produce the greatest response. SCR amplitude is sensitive to novelty and these scenes would presumably be most unfamiliar to the participants. In contrast participants SCR amplitude would not be as sensitive to relatively familiar events such as male killing male or male killing female which are more commonly depicted on television. It was

also noted that the inner-city subjects showed greater approval of these violent programmes, a fact consistent with heavier self reported television viewing and attendance at movie theaters. These results provide support for the work already suggesting that residents in high crime areas (which in this case would be the inner-city subjects) are more likely to be reactive to those programmes which convey crimes or aggressive acts which are likely to happen in their own environments. Frost and Stauffer (1987) stated " these findings support the theory that when media content is generally congruent with the real-life experiences of the audience, the result is a marked amplification of the reality of media messages".

2.3 Physiology and desensitization to media violence

Research on viewer physiological activity would at first seem to support the proposal that viewers can swiftly become desensitized to violent media. As a result of desensitization to media violence the viewer may come to associate such violent events as 'normal' and could be more inclined to engage in such acts in his or her daily life. Thus desensitization could result in violent acts being made more acceptable.

Some researchers have tried to implicate a decrease in viewers physiological activity in desensitization to screen violence. It has been suggested that physiological arousal to media violence may decline rapidly (even during exposure time). Zillman (1971) proposed that decay in viewer arousal is accomplished in three minutes after exposure. Thomas et al (1977) showed one group of subjects an 11-minute condensation of a detective programme whereas another group was shown a neutral film of the same length. Both adults and children who had watched the crime programme were observed to exhibit lowered emotional responsivity (as measured by their Galvanic Skin Responses (GSR) to films of real life aggression) when compared to the subjects who had first been given the neutral film. This may suggest that the physiology of those subjects given the initial aggressive clip may have been triggered already and that further exposure to

violence had no further effect on such responsivity; however physiological reactivity of those subjects who had previously been given the neutral film was triggered by the second aggressive film and thus changes in their physiology were more immediate and hence more elevated than those in the other group. However on the other hand GSR responsivity will be triggered by any exciting film. Therefore the effect may be due to excitement per se and not the content of that excitement.

In a later experiment Thomas (1982) reported similar findings using physiological measurements. She gave subjects either an aggressive or neutral film (15 minutes). Each one of these groups was then divided into two, with one half in each group being angered and the other half being treated neutrally. Each subject was then allowed to give electric shocks to the confederate as an evaluation of a problem solving task. It was reported that those subjects who had been given the aggressive film and who had then been subsequently angered showed the greatest levels of aggression but the lowest pulse rates both before and after shock delivery. This lower heart rate however may reflect differential patterning of physiological responses to anger versus excitement.

Research by Thomas et al (1977) has demonstrated the desensitization effect. In one of their studies, children who had previously observed an aggressive film , were seen to be less concerned about other children fighting. In comparison to their control group counterparts they were also seen to be slower at intervening in a serious fight between children in another room. In a second study when children who had been shown an aggressive film were asked how other children of their age would react to different conflict situations expected them to act more aggressively than did their control counterparts.

Berkowitz (1993) reported that male college students following a prior viewing of a fictional aggressive scene were reported to be less physiologically aroused by a subsequent news film depicting an actual street riot. Thomas et al (1977) also reported that people who watch the greatest amounts of violent television in their lives

exhibit the weakest physiological arousal in response to both fictional and realistic aggression. They concluded that their findings "lend credence to the suspicion that the excessive display of violence on television may be contributing to a population becoming increasingly inured to violence".

What is clear from the data on physiological responses to media violence is that the most consistent effect is an adaption of the response over time and this would occur if any film was shown. These studies do little to distinguish desensitization to film violence from desensitization to any other stimulation. What they do do is to confirm that non specific adaption will occur to another stimulus, Media violence, as it would with any other stimulator.

2.3 Television and imagery.

Although there have been numerous articles assessing the impact of television violence on aggression, only more recently have researchers begun to critically examine the relationship between television, creativity and imagination. Those that have been reported have concentrated primarily on children's imagery. The empirical evidence to date would seem to support the claim that television interferes with a child's acquisition of language skills and reading and impeding of his/her imagination.

Dorothy Singer (1979) has sadly stated that for children "the important member of the family may be the television set rather than the parent". Indeed for many children the television occupies a large part of their daily lives. Gerbner, Gross, Signorielli, Morgan & Jackson-Beeck (1979) found that in America, before a child enters school he or she will have spent a large part of their everyday lives in front of the television.

According to Piaget (1962) "...a child pre-exercises his imagination through varying degrees of imitation and through assimilation of such material into a limited range of pre-established schema".

Children get their basic ideas for such play from their peers (parents; friends) and from their environment (incidents they observe; the television). They learn from these stimuli about ways of behaving and the world in general. What effect if any will exposure to television, and more specifically, television violence have on children's' and adults' imagery processes ?

In a series of studies the Singers have examined the role 'imagination' may play in children's viewing habits and in their responses to television programmes (Singer, 1977; Singer, 1979; Singer & Singer, 1976). They have observed among other things that children who watch most television are those with the poorest imagery skills. In contrast, those children who watch the least amount of television, but who engage in make-believe play, are the most imaginative children. These latter children therefore would have more time to develop and practice creative fantasy play skills. These children are also seen to acquire more mastery skills than their heavy viewing counterparts. It was also reported that boys who scored highly on an 'Imaginative Predisposition Interview' were those who watched less Action-Adventure programmes. A two-year longitudinal study observing spontaneous viewing habits of American three-and-four year olds revealed significantly shorter viewing hours among children who played most imaginatively at home (Singer & Singer, 1981).

Other researches have yielded supportive data. Harrison and Williams (1977) also reported that there was strong evidence from their own research that television exposure was negatively related to children's performance on verbal fluency tasks. Deliberate exposure in nursery school to violent, action-packed television resulted in decreases in four year olds' fantasy play, whereas dramatic fantasy play increased significantly among a comparative control group who watched either no television or a non-violent low-action programme (Huston-Stein et al., 1981). An Australian study reported that in children aged between ten and thirteen, heavy viewers (those who watched 50 hours a week) earned lower scores on a test of imaginative problem solving than did moderate or light viewers (Peterson, Peterson & Caroll, 1986).

Testimony to the Australian Senate (as cited by Peterson et al 1986) stated that " the escapist material mainly watched by children is stifling children's imagination and the development of their creative instincts". Similar charges have been made against American Broadcasting companies (Winn, 1977).

Eron (1982) also observed that treatments attempting to change children's attitudes about television and aggression were less effective the more the child identified with the television characters. Also that the more the children identified with these characters the more aggressive they were observed to be. More interesting when Eron looked at another predictor of attitude change (that of reading of or being read and liking of fairy tales) he found that the more extensive the reading of fairy stories the more likely the child was to change his/her attitude to television . Fairy stories were written specifically for children to use their imaginations. The larger than life characters, unusual animals and strange kingdoms included in such stories all need interpretation by an active imagination for them to come to life. This suggests that the higher the imagery skill of the child (in that the more that child has exposure to and liking of fairy stories) the more control that child seems to have over stimuli presented from the television.

Wober (1985) in investigating children's relationships with both reading books and watching television, suggested from his results that imagery was seen to be important in mediating the possible impact of different kinds of films that children view. Singer and Singer (1981) also contended that training in fantasy (and hence imagery) can effect the relation between television violence and behaviour.

Surprisingly, there is still little research on the role that an adult viewer's capacity for imagination might play in such a relationship. Television is by its very nature a medium that is directly comparable to and emphasizes those elements that are generally found in imagination: visual fluidity, time and space flexibility and make- believe. Thus it would seem probable that

because of this similarity, the viewer's own imagination and imagery ability would play some role in their preferences for, reactions to, and interpretations of different television content.

The media is indeed a potentially powerful source of reference for various images, images that can be encoded and utilized in imagery generation at a later date. For example the majority of people when asked to generate an image of the grim reaper, usually describe a skeletal figure wrapped in a cloak and carrying a scythe - an image often portrayed in illustrations and on television. Thus people often utilize pictures from books or scenes from the television to enrich their images. Of course this in turn relies upon the individuals own imagery ability. By imagery ability I refer to the ability to generate visual images in the 'minds eye'. Some people are able to generate the images they are described and that these images are clear and sharp, while others either lack the ability to do so or have only the ability to generate vague and unclear images. Already studies to date have shown concern that the powerful visual components of television may lead to passive viewing and a medium for an easy escape for those people whose inner lives are troubled (Csikszentmihalyi & Kubey, 1981; Singer, 1980).

Research findings to date have, primarily using children as subjects, investigated the role of imagination in relation to behaviour both before and after viewing television programmes. Review of these data, as stated by Singer (1982) would seem to suggest an inverse relationship between heavy television viewing and self-generated imaginative capacities. Heavy viewing of television could stifle the imagination. It could well impede children's as well as adults practice of self-generated fantasy, for over indulgence in the television medium could make viewers rely on it for cognitive stimulation. More imaginative children have less need to, and/or live in houses where it is less habitual to watch a good deal of television.

Interestingly Singer and Singer (1981) reported that children with low imagination capability scores watched significantly more

television than their high imagination capability scored counterparts. Rapaczynski, Singer and Singer (1982) in a longitudinal study reported that " imaginativeness in 8-year-olds was best predicted by less pre-school television viewing and by less recent viewing of realistic action-adventure programming ". Fantasy play, internalization and imagination of events and characters of parental story telling represent important means by which a child learns to control and understand the environment and world about it. By doing this they consolidate skills that they will find at a later stage : imagery, vocabulary, social roles, social interaction etc. Zuckerman, Singer and Singer (1980) reported that children who spent more time reading, had not only higher IQs, but watched fewer fantasy violent programmes.

It has been reported that "the regular viewing of carefully paced programmes that include make-believe and fantasy, and encourages pretending, but clearly separates fantasy and reality, can stimulate the imaginations of children" (Singer 1982). It has also been suggested that imaginative children because they are more skilled at switching from fantasy games back to 'reality', could be more capable at distinguishing fictional programmes from the media and as such may not be inclined to imitate them (Singer & Singer, 1976). It has already been reported that imaginative children and adults are far less likely to engage in impulsive acts or in acts of intense aggression (Singer, 1973, 1975; Singer & Singer 1976).

It would seem therefore that those programmes considered unrealistic or containing a high degree of fantasy may be beneficial for the development of such skills. Here the child must, as in reading, actively interpret and imagine events and characters. It may be the reverse for realistic programmes. Here the child does not need any imaginative skills or interpretation, the plot, characters and events can all happen and are already credible. No active internalization is needed to understand the programme.

This leads to the observation that excessive viewing of realistic television could negate the child's time to practice such imagery techniques and as a result imagination among other things suffers. Singer and Singer (1986) already maintain that " heavy television viewing pre-empts active play practice and the healthy use of imagination". Thus the heavy viewing child unable to practice imagery techniques and consolidate such skills could begin to lose what skills did exist in the first place. Bettleheim (1960) recognised that television viewing could cause imaginative abilities to atrophy via disuse. As a result children could find it increasingly difficult to internalize events and utilise their imaginations in their play activities and so come to rely more and more on the stimuli provided by the television.

This phenomenon could also exist and be just as highly relevant for adult viewers as it would seem to be for children. It could be that any individuals with low imagery/imagination capability seek the additional cues provided by the television in an effort to supplement their own fantasy life. Thus it is possible that television itself acts as some kind of artificial 'imagination' or 'imagery pool' for those individuals with normally poor internal imagery representation skills. Peterson, Peterson and Caroll (1986) concluded that "one possibility is that children who intrinsically lack imagination are motivated, as a result, to become heavy viewers". They also recognised that "conversely, it is also plausible that exposure to large doses of television might block the development of the imagination".

Paradoxically, television for these low imagers could also have by the very reason they use it, potentially damaging effects on what limited imagery skills these people have. A vicious circle is created from which the low imagery individual is unlikely to escape. Initially such viewers begin to realize the television can provide a boost to the imagination skills they never had. As they watch more, they begin to rely on it. As such they get mentally lazy and because of lack of use begin to lose what little original abilities they previously had. In an effort to further boost their imagery experience, they watch more television. Thus disuse of

their original imagination skills and the substitution of effort-needed activities such as reading for the less effort-needed task of television watching could herald the death of the natural imagination for that of the 'canned' type ! Television diminishes the opportunity for or incentives for, imagining.

Peterson, Peterson and Carrol (1985) have already suggested that children who intrinsically lack imagination are motivated as a result to become heavy viewers and as such it was plausible that exposure to large doses of television might block the development of imagination.

It could also be predicted that extensive television exposure could stunt the creative potential not only for low imagery individuals but also for those with a high imagery ability. Saloman (1979) has already proposed that television does not demand as strong an amount of invested mental effort as does reading. Thus extensive television viewing means that there is less time for these other imagery stimulating engagements, such as reading etc. In support of this hypothesis, Peterson, Peterson and Carroll (1985) found that in both groups of high and low imagers heavy television viewers earned lower scores on a test of imaginative problem solving than did light/moderate viewers. This study would seem to suggest that imagery has nothing to do with imaginative problem solving, but that television viewing <u>does</u> ! Meline (1976) has also suggested that heavy television viewing exerts a temporary 'spellbinding' influence that appears to block out mental overturning and imagery processes.

This hypothesis has far reaching implications for research investigating the relationship between viewer aggression and violent television. If low imagers look to the television as a surrogate for an active imagination what effect will violent or indeed non-violent but realistic television portrayals have upon them ? Singer and Singer (1981) have reported that "children who watch a great deal of action-oriented or violent television seem likely to reflect this in their fantasies and to carry this out in overt behaviour". Singer (1977) also reported that children with

low fantasizing ability were more aggressive, frustrated more easily, were less cheerful and at greater risk of delinquency. This would suggest therefore that the adverse consequences of an ' impoverished imagination ' could extend well beyond the environment of classroom creativity alone.

As existing literature seems to suggest that realistic violence has the strongest effect on viewers subsequent behaviour it remains to be seen if viewers with differing imagery ability differ also in their susceptibility to the realistic violence effect. Noble (1975) found that children played significantly less constructively after seeing realistic violence rather than stylistically-filmed aggression (i.e.: fictitious violence). In contrast the children used more imagination in their play when they were shown the 'staged' aggression.

Research on imagery and cognition has already highlighted an effect that could be of relevance to the role of imagery in relation to media violence. It has been reported that some individuals had a tendency to include imaginary events as parts of their perceptual experience (Johnson & Raye, 1981 ; Finke, Johnson & Shyi, 1988). More importantly it has been observed that subjects with high imagery capacities tend to incorporate imaginary events as actually perceived more than subjects with lesser imaginable capacities (Johnson et al, 1979). Thus though the low imager could well be more adversely affected by realistic media violence, it could be the high imagers who in contrast are those most affected by fictitious violence. The high imagers will be able to relate more readily with these make-believe situations, capable of transposing them into images with the potential of realistic existence. The low imagers on the other hand do not have the imaginational capacity to readily and fully relate these fictitious images to the real world and as such might not be as easily affected by them.

Thus it is predicted that the viewers with low visual imagery will show a greater response to realistic violence than those viewers with high visual imagery.

Viewers with low imagery abilities faced with sharp and often vivid images of realistic screen violence may be unable to cope with such stark images. They have had little exposure to sharp images being unable to generate them independently without the aid of already formulated images such as that provided by the television. Thus the low imager needs to adapt to the images more acutely. The high imager in contrast has had more exposure to such sharp images, being able to generate them independently of the television, and has had more time to have become desensitized to them.

This orienting response to stark images could have important implications. What little capacity for imagery the viewer has, has been filled with vivid images, ideas, scenes of violence stolen from the television. Once such images are in place they could be difficult to dispel and could, according to Berkowitz's associationist theory, give rise to other feelings of aggression and hostility. Thus the low imager could well be more prone to aggressive behaviour following the viewing of television violence. For example Singer (1977), found that children with low fantasizing ability were much more aggressive than those children with higher abilities. McIlwraith and Schallow (1983) found that out of 82 first graders in Canada, those who showed evidence of greater television viewing and involvement with television were also characterised by more anxious, hostile and dysphoric daydreams. Perhaps more worrying was the observation that boys who showed the least inner imagination and who also watched programmes in which there was considerable depiction's of violence were the most likely to be overtly aggressive at school.

Sutherland (1971) has also suggested another area where imagery skills may be important in the interpretation of and reaction to media. She has proposed that some books, films and programmes have the power to leave the reader/viewer in a state of unresolved excitement. Her example of the film *Kanal* expands on this concept. In the film two Russian resistance fighters attempting to make their escape from the Germans via the sewers under Warsaw, arrive eventually at what may be a safe way out -

only to find it blocked by an iron grille. Here the film ends and as she states , the viewer "is left, with terror, fear, sympathy unresolved". Indeed such films could leave the imaginer in a sudden state of distress which can only be resolved in the working out of some solution. In order to do this they must utilise their own imaginations and imagery abilities. Under these conditions it could be suggested that the low imager is even more distressed, failing to have the necessary skills to resolve the matter. Realizing this, frustration could further heighten the chances of feelings of anger which in turn could make the low imager most susceptible to any subsequent provocation..

Thus from the above data it would seem clear that children do not seem to be stimulated in imaginative play by heavy television viewing. Summarising field and experimental work with children, Singer and Singer (1981) concluded: "what data emerge for very young children suggest that television viewing seems to pre-empt self-play time and may impede creativity". It has also been suggested that those children with less imagery capabilities also seem more susceptible to the negative consequences of viewing violent programmes and that this susceptibility is heightened in response to real film violence. Heavy viewing, and especially the viewing of more violent shows, seems to be tied to overt aggressive behaviour and less imaginative play in children - and that this is exacerbated for the very young child (Singer and Singer 1981). Have the results utilizing children been confounded with developmental issues ? One way of testing for this would be to use adults under similar circumstances and test if imagery ability results in differentiated responses to screen violence.

It has also been shown that when subjects are told to concentrate on pictures of weapons they are seen to exhibit more aggressive responses than when given neutral objects (Turner & Goldsmith, 1976). Unfortunately, studies examining this effect failed to look beyond this initial observation. Is it because, when studying the weapons subjects conjure powerful images of their use for death and destruction ? Subjects did reportedly associate the weapons

with violence and symbolic verbal logic is undoubtedly needed for this effect to occur. Weapons are obviously designed for inflicting wounds, yet in these experiments they were presented to the subjects out of context for such use (slides of weapons lying inactive and idle). For the subjects to associate them with violence under these conditions, an element of imagery is needed to put the weapons into context. Subjects would be required to use imagery to create reference examples of how the weapon is used and what damage it can inflict.

Support for the use of imagery in the weapons effect is seen in a study reported by Leyens, Cisneros and Hossay (1976). These researchers led some of their subjects to pay attention to, and think of, the non-aggressive aspects of the slides presented to them by asking them to attend to the aesthetic qualities of the weapons. It was reported that these subjects were less aggressive than other subjects who had been shown the weapons but who had not been given any instructions. Thus when subjects are drawn away from the weapons' destructive qualities to the more neutral qualities of craftsmanship etc. the phenomenon is not seen. It would seem, therefore, that the possibility of creating violent images has been diverted by the formation of more calming ones, associated with aesthetic qualities. The subjects have been instructed to see (and as a result of this respond to) the weapons as mere objects rather than as items of specific purpose. This 'stepping back' from one particular applied perspective therefore reduces the likelihood that the witnessed aggression will activate aggressive tendencies.

Berkowitz (1993) cites a supportive example of this phenomenon. He maintains that such a 'stepping back' mechanism accounts for the fact that professional film critics seem rarely bothered by the violence which they frequently encounter in their work. "When they watch a movie, their attention is apt to be centered on the aesthetic and artistic aspects of the production, so that they don't become aggressively aroused" (Berkowitz,1993).

In the light of these points, examination of the mediating role of mental imagery in the relationship between television programmes and subsequent viewer behaviour has been seriously neglected. Few studies have investigated the potential role of viewer imagery in the media aggression equation. How the brain stores, and what it processes from, stimuli are important questions in media violence research. One of the ways in which the brain encodes information from the environment is mediated by mental imagery . Individuals differ in their imagery, both in the medium in which they like to imagine and in the vividness and controllability in which they experience their imagery. Somewhat problematic to this is the fact that it is difficult to know exactly how much imagery people actually utilise, and this in turn makes it difficult to investigate whether their behaviour would have been different without the use of imagined experience.

2.4. Viewers' moods and screen violence.

Consideration of role of viewers' emotions (more specifically moods such as anger, sadness, anxiety etc.) in reaction to film violence would seem crucial to the overall study of the media violence phenomenom. People's moods can influence their subsequent thoughts and memories. Alice Isen (1984, 1987) has discussed the effects of positive moods on peoples behaviour. Among other things she reported that when people report being in a good mood, compared to when they have rated themselves to be in a more neutral mood state, they tend to regard themselves and the people around them more positively and are less likely to view the world as dangerous.

Negative moods in contrast tend to have the opposite effects. People who report feeling bad have been seen to remember unhappy events, think more negatively of both themselves and the world in general (Bower, 1981; Johnson & Tversky, 1983; Johnson & Magaro, 1987; Teasdale, 1983; Wright & Mischel, 1982. Baron (1987) has also reported that participants in an experiment who were induced into an unhappy mood rated pseudo job

applicants more negatively than those people who were induced into happy moods.

These results have important implications in the field of media violence. Do violent and aggressive films induce negative mood experience and if so which types have the most detrimental effects on viewers mood experience.

Consideration of the role of emotion in the effects of media violence on an individual should be considered important. Much of previous work in this area has assumed that viewers are passive recipients of what they watch on television or at the cinema. That is to say, they have no role in determining how they might respond to such media violence. Gunter (1983) rightly argues that the viewer is in actual fact an active recipient of what they watch. They seek out the programmes and films they wish to see. As such they also actively appraise what they watch via complex cognitive processes. As Lazarus (1991) maintains "Appraisal is thus a key factor in the evolution of adaptional processes, including emotion". How people perceive and process such violence as well as how they perceive they feel the violence has affected them, are both important in how they react to it. Thus it would seem that physiological activity, mood experience and cognitive interpretation are potentially important factors in determining how people might respond to media violence. People appraise the context of the film violence (real Vs fake, justified Vs unjustified violence etc.), their present mood state is assessed for positive or negative affect, while their physiology plays an intensifying effect (either consciously or subconsciously) to the overall emotional response (be it just mood experience or actual behavioural action).

Yet there has been much debate on the relationship between cognitive attributions, physiology and the formation of emotional experiences. In considering the importance of emotion in the media violence equation the work of Schachter and Singer (1962) and more recently Reisenzein (1983) are of particular relevance.

Schachter and Singer (1962) at first investigated the notion that specific emotions are a function of particular bodily reactions. According to their theory people do not feel angry for example because their muscles tense or their pulse rate increases but because they are generally aroused and have certain cognitions about the nature of their arousal. Thus they maintained that when people encounter an emotion exciting event (a violent film for example) they first experience undifferentiated physiological arousal. What happens next depends on whether the person knows why they are aroused and what they are feeling. If they are aware of what has aroused them (the film) and what feelings they are having (increases in negative moods) they will then form a belief about the nature of their sensations and this cognition will then label the undifferentiated arousal into a specific emotional experience (anger). They maintain that even if individuals are unsure as to what emotion they are experiencing they will look for clues (presumably at an unconscious level) which might aid explanation of the nature of their sensations. An important factor in this theory is that Schachter and Singer maintain that physiological arousal (defined as emotionally non-specific) determines only the intensity and not the quality of an emotional state. "It is the cognition that which emotion, if any, will be experienced" (Reisenzein, 1983).

In an effort to clarify the main concepts of Schachter and Singer's (1962) two-factor theory of emotions Reisenzein (1983) gave clear definitions of his interpretations of 'emotion', 'cognition' and 'arousal'. These clarification's provide useful sources of reference for these three concepts which are used throughout this thesis. He maintains that though there is no generally accepted definition of emotion, "it is more or less agreed that the following four factors should be taken into consideration: emotional experience (subjective feelings), physiological arousal, expressive reactions and emotion-related instrumental activities". Thus at a very general level emotions can be thought of as multidimensional response syndromes (e.g., Averill, 1968; Lazarus, 1968 and Lazarus, Averill & Opton, 1970).

Cognition is " a particular subjective interpretation of a situation or an events, such as interpreting a situation or event as being 'dangerous'...'funny'." Thus these cognitions include evaluations, expectancies and causal beliefs about the events that are being appraised. It is suggested that this appraisal process is rapid and unconscious (Arnold, 1970 and Mandler,1975) and this points to the fact of why emotional reactions to even highly complex events or situations are fairly swift. Thus as Reisenzein suggests "emotion is a post cognitive phenomenon".

Arousal as used by Schacter (1971) refers to heightened activity of the peripheral vegetative system (Reisenzein, 1983). This peripheral arousal is proposed as being generally undifferentiated or emotionally nonspecific. Indeed Schachter and Singer (1962) believed that emotional physiological differentiation, if it did exist, were too subtle to be of any psychological significance. The important factor here as proposed by Reisenzein is the distinction between " physiological arousal per se and perceived arousal that is the perception of arousal from the periphery". It is suggested that it is the perceived arousal rather than the arousal per se that is the proximate determinant of an emotion. This has other implications. It provides an explanation to account for the proposed unspecificity of arousal, for as Reisenzein (1983) maintains "even if reliable emotion-specific physiological response patterns could be detected at the periphery the individual could still end up with the perception of diffuse arousal due to the relative insensitivity of the feed back system". It also suggests that physiological arousal that is too low in intensity to be perceived by the person should not contribute to an emotion.

Reisenzein (1983) reviewed the available data which addressed the main components of Schachter and Singer's theory. Reisenzein concluded that " the available data seem to support only a rather attenuated version of the theory: that arousal feedback can have an intensifying effect on emotional states, and that this arousal-emotion relationship is mediated or modified in part by causal attributions regarding the source of arousal". Even this modified version of Schacter and Singer's original theory could easily be

applied to the study of media violence, after all films and programmes have the potential to be emotion-exciting events. Emotional experience and emotional behaviour to film violence, as with any emotion-exciting event, results from a complex interaction between physiological arousal and cognitive interpretation. People are most probably more unaware than aware of their physiological responses, but this does not mean that the brain itself has not processed them. Indeed preconscious processing of events can function as a general alert/signal for the brain to search for meaning. Emotion is thereby given visceral quality and intensity by peripheral arousal, while the cognitive interpreter gives it interpretation and overall meaning.

This model could account for resultant emotions Indeed as has been suggested, individuals are not always aware of the evaluative aspect of an event until or unless some other internal or external event requires that a judgement be made. Conscious emotion is constructed by cognitive value which is in turn constructed from whatever evidence can be gleaned from physiological feedback, either at conscious or subconscious levels.

For cognitive appraisal in relation to media violence evaluations such as its context, it's perceived justification or unjustification, individual's attitudes and attributions all seem relevant. These components and/or modifiers contribute to the overall emotional response, they mold the shape of any emotion that might result from the viewing of such material. Such a model could explain why different violent films or programmes produce different mood patterns and can result in individual differences.

The importance of cognitive interpretation of media violence has already been suggested. Berkowitz (1986) has proposed that the "subjects' definition of observed violence as being only fictitious seems to distance them from the events psychologically so that it has less of an impact on them". Geen and Thomas (1973) have also suggested that scenes perceived as 'real' are processed as a more intensive informational input and hence create more immediate effects. Such scenes provide the basis for more dramatic images.

Real life scenes also allow the viewer to identify with the events and the characters more readily. Unlike the staged and highly polished fictional film violence, the events depicted in real life scenes are not only possible in daily life but have immediate effects on the actual people contained in such footage. The characters, just like the viewers are actual people, and unlike actors, bleed and die. Other work also supports the importance of cognitive evaluation in viewers reactions to film violence. The nature of the violence, either real or fictitious (Berkowitz & Alioto 1973), with or against persons or objects (Hanratty et al 1969 ; Bandura et al 1963), in its contextual existence (Berkowitz & Rawlings 1963; Geen & Stonner 1973), or the type of violence portrayed all produce differing viewer reactions. Thus all would seem important factors in the overall evaluation of the violence watched. Considering this and the suggestion made by Reisenzein (1983) that increments in physiology act as intensifiers to emotional experience it is predicted viewers physiology will be more elevated to real violence and that further, the films that account for the greatest increase in participants physiology will also account for the greatest increases in overall negative mood experience.

As suggested by Schacter and Singer (1962) cognitive interpretation can operate both actively or passively.The passive condition suggests eventual emotional experience is an interaction between the perception of autonomic arousal and interpretation and feedback from cognition. For example an interaction between the autonomic arousal perception and the evaluation of a situation as positive and pleasant gives the feeling of pleasure. This is applicable to reactions to media violence. An interaction between autonomic arousal perception and the evaluation of the situation as negative and aggressive/violent gives the feeling of anger. In the active condition, in which a particular situation could have an ambiguous emotional response, the system actively searches for clues and inputs from physiological arousal and/or cognitive evaluation are fed into existing structures based on past experience and at times innate factors. Thus both strong physiological and cognitive reactivity to screen violence would

probably be the best predictors of subsequent viewer aggressive cognitions or mood states.

The above discussion suggests that in order for any screen violence to have the highest ability to increase viewer aggressiveness or to create a predisposition to be able to aggress, it would seem that it must cause both an increase in viewer physiological reactivity and heightened levels of viewer cognitive interpretation. Whether this physiological reactivity is consciously perceived by the viewer is unsure. It is suggested that it is not.

Obviously more work is needed to look for further evidence to support the existence of such a relationship, and the role of viewers' cognitive and emotional input into it. Is it just viewers perceptions and cognitions about the violence they have watched that have a strong influence on the subsequent aggression they may feel or will other factors such as mood states also be influential ? Thus could heightened negative moods also influence materialization of aggressive emotions? Also the suggestion that physiological reactivity can have an intensifying effect on emotional states warrants further investigation in specific relation to media violence. Does media violence which causes the greatest increases in viewers physiology result in a comparable increase in their emotional response (i.e. the greater the physiological reactivity the greater the viewer's subsequent experience of aggression, anger etc.).

As has been discussed in the previous chapter, imagery ability could play a role in the relationship between media violence and subsequent behaviour. It has the potential for an influential role in this proposed model of media violence appraisal. Its role could bein both the initial arousal period and the cognitive interpretation that follows. How stark and/or dramatic media images are perceived on the part of the viewer could have an influence on how novel that stimulus is initially perceived.

Frost and Stauffer's (1987) study yielded results which are supportive of the proposed appraisal model. In the study it was

observed that it was the type of violence which caused the greater emotional response (via changes in SCR) that was recalled sooner by the subjects. The scenes in which the female killed the female was rated as most exciting by all subjects, evoked the highest SCR response and was recalled first. The least exciting depiction's reported by the subjects were the depiction's of male-female assault. These scenes were recalled last. For college subjects these scenes also accounted for the smallest SCR responses and the third smallest for inner-city subjects (after both the male-kills-male and destruction-of-property clips). It is unusual for such an event (female killing a female) to occur in a programme or film, with male-killing-male, or male-killing-female being the most likely violent act to be shown. Therefore, because of the novelty of this scene, the images it creates are processed as more vivid. Both the vividness and novelty of the scene block desensitization and the viewers once again experience arousal, as shown by the increases in their physiological reactivity. In the low imager, such intense images may overwhelm cognitive processes, also resulting in sudden levels of anxiety. The observation of such intense images could artificially stimulate the viewer into a 'flight or fight' response.

From Frost & Stauffer's results it would seem that it was those violent scenes with the most dramatic and/or novel content which triggered the largest subject response. Thus the content of the violence as it is shown in such programmes could have a direct effect on viewer emotional and cognitive reactivity as has been suggested. Visual imagery ability could act as a potential amplifier which, under certain contexts, acts to increase the magnitude of the initial physiological arousal.

Imagery may also play another role in mediating the relationship between television violence and aggression. The vividness of the images portrayed from such programmes and the perception of these could also help to explain other observations. As has just been proposed, it could be that the more dramatic the violence, the greater the effect on subsequent viewer behaviour. Perhaps the more dramatic the events portrayed, the more vivid are the

images perceived by the viewer. For instance, it has been shown that adult models are imitated far more when they are seen to carry out aggressive acts vigorously than when they act in a more constrained way (Parton and Geshuri 1971). Thus, for the child, the more dramatic and vivid image would be of the vigorous model and, as such, this image could be encoded more readily than the less attention-grabbing image of the restrained model. Thus the viewer's physiology could actually be influenced not only by how one perceives the violence (in terms of reality and novelty) but also by the internal images created by such stimuli.

There could also be a strong relationship between encoding of a violent image and physiological reactivity, in that the greater the increases in physiology (heart rate etc.) to an image the greater the chance that image will be stored by the viewer. Results from the Frost and Stauffer (1987) study would seem to support this hypothesis. Immediately after seeing the videotape containing the ten violent clips, subjects were asked to write one-sentence descriptions of as many as the ten scenes as they could recall. College samples were seen to recall significantly more scenes than inner city subjects. The fact that college subjects have obviously received more education opportunities than their city counterparts could have also influenced these results to some extent. It may have been that the inner city sample could have recalled more of the scenes but didn't have the written or vocabulary skill to differentiate such scenes.

Most often recalled first was a female killing a female, followed by depiction's of rape/murder. Marks (1973) in extensive research on imagery and memory, reported that subjects who reported vivid visual imagery were more accurate in recall of pictures than those subjects who reported low visual imagery. However, vividness of any image presented via the television is determined as much by the visual impact of the programme viewed as it is by the viewer's processing of such images. Thus while the screen controls what will appear to the viewer, it is the viewer's imagery ability that determines <u>which</u> pictures are retained in sharp detail (i.e.., which remain vivid). A programme containing more

potentially vivid images should be encoded into the viewers' memory more readily than a programme that does not contain such vivid material under such a proposal. Usually scenes of aggression and violence as depicted via television and the cinema are becoming increasingly more vivid as visual direction and technology improves the standards of special effects. Film critic Barry Norman recognised this very problem recently emphasising what he deemed the "worrying increase in dramatic scenes of violence in recent film releases" (Norman 1993).

In contrast however, it could be argues that imagery 'vividness' in relation with the observation of screen violence could have positive consequences for the viewer. The more vivid the violent programme is deemed by the viewer the less likely desensitization to it will occur. As we have already seen viewer desensitization to media violence could cause negative consequences, such as the normalization of such violence and its incorporation into the viewer's behavioural repertoire. Thus anything to delay or avert such a process would be beneficial. Thus the more vivid the visual stimuli, the more novel they should be classified by the viewer and the less chance that both accompanying anxiety will decline and that desensitization will occur.

2.5 Summary

From more recent research the viewer has emerged as an active participant in the media violence relationship. With this conception new questions have arisen as to which particular characteristics might account for negative responses to such violence. Both viewers physiology and cognition's have been suggested as possible factors as a result.

It is suggested that while film violence may cause undifferentiated physiological reactivity it is the viewers cognitive interpretation of the films events that mold this undifferentiated arousal state into a specific emotional experience. Physiological arousal could have an intensifying effect on the resultive emotional experience. The present instance of media violence is evaluated on its novelty, the context of the violence (real or fictitious), the vividness of the images it depicts, the moods that it evokes, and the attitudes that are perceived to it. These various cognitive components lead to an overall cognitive interpretation of the specific instance of violence watched. If as a result this interpretation is negative, then a negative emotional response is expected. The magnitude of this response could be largely dependent upon the level of physiological arousal. It is suggested that further research into both of these distinctive systems, physiological arousal and cognitive interpretation, is needed to establish such proposed relationships in relation to the effects of media violence on viewers emotional experience.

Chapter 3

Lights, camera, action! : Methodological considerations.

3.1 Introduction.

Headway is now undoubtedly being made by researchers of media violence towards discovering the crucial conditions under which specific filmed behaviour in certain environmental settings by particular kinds of viewers are related to subsequent aggressive responses and factors. However this progress has been delayed by the fragmentation of media violence research. Because this specific area of media research has wide ranging implications for both social policy and the welfare of the members of society as a whole, it has attracted the attention of a diverse range of social investigators. These have included investigation from the internal structure of the television framework itself (eg: In the U.K the Independent Broadcasting Authority); reports from public health organisations (eg: the National Institute of Mental Health in the USA); reports from Government-funded committees (eg: the U.S Surgeon General's Scientific Advisory Committee on Television and Social Behaviour) and attention from sociologists, psychologists and communication experts.

This fragmentation of research has therefore often led to confrontation among the differing research bodies. For such a diversity of attention has subsequently yielded a diversity not only in research priorities but also in the design of such research. While the correct use of methodological design is of vital importance to the study of media violence and its effects on viewing populations, it must also be remembered that different disciplines will have different priorities of research and this will result in different usage of experimental design. Surprisingly the main confrontation has not been as much about research priorities as it has been about the methodological design of such work.

It is perhaps the researchers who have the greatest input into the research on the effects of media violence who also have the deepest splintering of opinion. Dependent on their own specific fields of investigation (cognition; social interaction; psychophysiology etc.), psychological investigators have utilised different methodological designs suited to their own particular

specialised area of interests. As a result each discipline has been able to collect specific results from their own areas of focus which have in turn been used for the formation of their own specialised and independent theories.

This 'independency' of disciplines has unfortunately resulted in the delay of research progress. Rather than seeking ways to relate and ally their findings to other disciplines, researchers have instead encouraged open rivalry within this field by sheltering firmly within the fortified camps of their own specific research interests. The work of psychological researchers in the investigation of media violence can be likened to the completion of a jigsaw puzzle, each discipline or sub-discipline working to produce its own piece of the jigsaw. Paradoxically the various pieces cannot be fitted properly unless other pieces have already been fitted in their relevant places. Each piece therefore needs refer to other pieces before it can take its own position. This analogy works. For like the jigsaw pieces, the various disciplines are faced too with the problem of where their particular theory fits in relation to other theories in an overall working explanation of the effects of media violence.

The often bitter debate on which methodological realm is better suited to the study of the effects of media violence has exacerbated this situation and widened the difference in opinion still further. The debate over methodological design added a second more fundamental problem. That is how best to reliably produce such jigsaw pieces let alone where they should finally fit.

Others have recognised the problems raised by this passionate methodological debate. Andison (1977) presented a culmination of results of media violence based studies during the period 1956-1976. It was suggested from this culmination of studies that the methodology of research can, and does, affect the findings of a study quite substantially (Andison, 1977). More interesting Andison maintained that "this only reaffirms the argument for using the cumulative research strategy". In other words the recognition that results from varying psychological disciplines

should not be taken in isolation. Treated with caution this may be a valid point. Cumulative research strategy could not be employed to predict the vital factors contributing to any such relationship. What it could do however is give a broad indication of the direction of research results available.

3.2 Laboratory vs field design.

The debate over suitable methodology for media violence still remains contentious within the domain of psychological research. There are those researchers who see the laboratory work on the 'immediate effects' of observing violence as of paramount importance in deciding the existence of a causal link (Friedrich-Cofer and Huston 1986); while there are others who contest the comparability of the 'unnatural' laboratory environment with that which the normal viewer is familiar (i.e. the home) and would contend that field or natural studies are the more valid predictors of any causal relationship that may exist (Freedman 1986). It would seem that those researchers who have joined the debate are biased by the methods best suited to their own specific interests.

Most of the criticisms of laboratory based work in psychology in general have attacked them for their 'artificiality' and it has been this that has led the main attack against the laboratory researchers. Berkowitz and Donnerstein (1982) in a reply to criticisms leveled at laboratory based work summarised this contention over external validity when they wrote that "...the great majority of psychology's experiments employ a very limited sample of participants (typically, college students) placed in a fairly unique setting (a university laboratory) and usually working on tasks bearing little resemblance to their everyday activities". Other scientists have raised similar doubts, arguing that the results obtained in the laboratory are only specific to the narrow phenomenon studied under specified conditions (Allport, 1968). Indeed the protaganists of the field based research on media effects argue that theirs is the best domain for reliable and

comparable results with the 'real' world. They see the field design as the more practical for such investigations. Laboratory work it is held exchanges greater control over the situation for ignorance of the fact that the effect of media violence on behaviour in natural settings involves many complex interacting variables and influences which are often uncontrollable.

Harré and Secord (1972) have illustrated valuable examples in which laboratory researchers have neglected the social contexts within which people are embroiled in their typical daily lives and have asked their subjects to respond to some stimulus or other on the basis of severely limited information. Their critique of Byrne's (1969) laboratory based studies of inter-personal attraction highlight the inherent shortfalls of such designs. In these studies subjects were asked to rate their liking for a person whose attitudes were listed by the experimenter. Indeed this procedure bears little resemblance to the development of liking in 'real life' where a person acts on a face to face assessment.

It has also been stated that the methodological design of laboratory work lacks any fundamental conception of basic human nature. Wachtel (1980) among others maintains that human beings actively seek meaning to a stimuli before they respond to it, and that these responses are governed by social rules themselves. These basic considerations of human behaviour, it is alleged, are often neglected or forgotten in the stringent world of the laboratory.

Freedman (1984) wrote "accordingly, the laboratory research, while showing that television violence can increase aggressiveness under certain limited conditions, may tell little about the effect that television has in the world outside the laboratory". Earlier Kane, Joseph and Tedeschi (1976) raised considerable doubt on the validity of the procedures typically employed in laboratory work on media aggression. So how can laboratory-based studies improve our knowledge of how media violence effects the ordinary people engaged in their daily lives if they are seen to lack any form of external validity?

At first thought such a question appears fatal to the validity of laboratory work, and indeed there would seem no easy answer to this accusation. However recent debates over field vs laboratory in the field of industrial and organisational development and further consideration of this question by social psychologists have provided a rallying point in the defense of the validity and reliability of laboratory designs in media research.

Indeed it would seem impetuous to assume that field investigations are inherently more valid than those based in the laboratory: "There are limits on the generalizability of all findings, which can be revealed only through systematic testing with different subjects, settings, and responses" (Flanagan and Dipboye, 1980). Berkowitz and Donnerstein (1982) have offered perhaps the most comprehensive defense of laboratory experiments and most of the following scientific points are summarised from their paper.

Kruglanski (1976) has maintained that the "content of psychological theorizing is not inevitably affected by experimental methodology" (cited in Berkowitz & Donnerstein, 1982). The laboratory does not always reflect subjects as involuntary responders to meaningless stimuli. Indeed under some conditions, people do behave and react in an automatic way in their daily lives and this can be better investigated by the strictly controlled experiment. It also seems apparent, particularly from experimental social psychology research, that laboratory subjects are treated as active meaning seekers and that the emphasis is now firmly on the role of the individuals thought processes. Berkowitz and Donnerstein have argued further that laboratory experiments may even give us a more accurate account of human complexity than do the uncontrolled naturalistic designs. The laboratory environment, they contend, allows us to investigate more thoroughly how people are seen to be deliberate under some conditions and are more rash under others.

Earlier, Postman (1955) made the valid point that if the investigator wanted to estimate the probability that a certain event would occur in a particular population then he or she should turn to the representative designs high in ecological validity. However if the researcher is primarily testing some causal hypothesis, and is dealing with mainly mediational processes, then he or she should look to the controlled environment of the experimental laboratory. His argument is particularly relevant to investigations of the immediate responses to media violence. For here a causal hypothesis (that is that the observation of media violence will increase the likelihood of a subsequent aggressive response) which has many mediational processes exacted upon it, is under investigation.

Defense against the accusation that laboratory experimentation is artificial has also come from scientific philosophers. Henshel (1980) among others has distinguished two pursuits of scientific investigation. The objective of verification which is aimed at the testing of some hypothesis, and the objective of discovery which is aimed at uncovering new phenomenon under conditions not yet existent anywhere in natural settings, but which are capable of existing. He argues that the experimental control exercised in the laboratory facilitates such discoveries, and fulfills the second pursuit of scientific enquiry. Thus artificiality bears no significance for this objective. Henshel sites language acquisition by non-human primates and the research on biofeedback as two convincing examples of the valid pursuit of discoveries under laboratory conditions, which could not have hoped to have been discovered if they had been limited to naturally occurring variations in conditions.

3.3 Construct validity of laboratory experiments.

Berkowitz and Donnerstein have also stressed that the meaning given to a situation can determine the generalizability of a given behaviour. Thus the meaning the subjects attach to the situation they are in and the behaviour that they are inacting are seen to play a much greater role in how the generalizability of an experiments outcome is determined than does the surface realism of the setting. Dweck, Goetz and Strauss (1980) have argued along these lines. They maintain that when an individual makes the same causal attributions in two objectively different situations, they will generalize their experiences from one situation to the other. Thus though the laboratory experiment may not be as externally valid as the field study, its findings through such generalization, may be more readily comparable to field results than some of the more rash scientists would care to recognise.

The interpretation of the situation by the subject is indeed important in any study. It has been argued that laboratory experiments on media violence fall foul of two damning faults which stem from the subjects perception of both the experimental situation there are in and the methods that it employs.

The accusation that demand characteristics cloud the generalizability of laboratory results is an established criticism. It assumes that subjects are aware as to both the nature and purpose of the experiment they are involved in and that because they wish to look 'good' in the eyes of the experimenter comply to the his or her demand cues (evaluation apprehension). This notion was first raised by an investigator of hypnosis, Martin Orne (1962). Orne postulated that to be a 'good' subject it also meant that you had an obligation to confirm the researcher's hypothesis.

Orne has assumed that all subjects can see through all experimental deceptions thrown up as a smoke screen by many researchers. Indeed there may be cases whereby some of the subjects (albeit a small minority) may well be aware of the true nature of the research at hand. Critics of laboratory work have

harnessed this point and stretched it to its extremities. They assume that subject awareness has been shown in many experiments on media aggression including that of the weapons effect. However correlation of behaviour with awareness does not provide evidence to conclude that this awareness had been brought into the laboratory and has influenced the behaviour. Berkowitz and Donnerstein argue that awareness could in some cases be inadvertently provided by the questioning or debriefing of the subjects at the end of the experiment. They cite the criticisms to the 'weapons effect' as an example.

Page and Scheidt (1971) have maintained that the 'weapons effect' results, as reported by Berkowitz and LePage (1967), were artificial and arose due to the demand cues present in the study. Thus the deliberate provocation of the experimenter and the presence of the weapons was seen as a clear 'green light' for subjects to get even with their tormentor and deliver as many electric shocks as possible. However Berkowitz and Donnerstein maintain that the questioning of the subjects at the end of the experiment as to the possible reasons for the presence of the weapons, could have implanted the explanation for their behaviour and provided the excuse for their actions.

Turner and Simons (1974) tested the effects of demand characteristics and evaluation apprehension on subjects responses to the weapons effect. Subjects were divided among those who had been briefed as to the nature of the experiment by a confederate (demand characteristics condition); those who had been told that their psychological adjustment processes were under scrutiny (evaluation apprehension condition). Subjects were then provoked and allowed to respond with shocks as with the weapons effect. Results indicated that the greater the subjects awareness that the experimenter was interested in their responses to the weapons, the fewer the shocks they gave. Thus rather than being more compliant subjects seemed more restrained (to the effect). It was argued that this effect was seen because aggression is considered a weakness and an 'evil' in our society and as such the subjects did not want to look 'bad'. This

was highlighted in the evaluation apprehensive subjects results, who also gave fewer shocks than their less apprehensive counterparts. " At the very least, these findings clearly indicate that subject compliance to demand cues is nowhere near as serious a problem in aggression experiments as some critics have supposed " (Berkowitz and Donnerstein 1982).

3.4 Methods of provoking and measuring aggression.

Other objections to laboratory based research have centered on the methods employed to both instigate and measure aggression. Perhaps the most commonly raised criticism has been the unrepresentativeness of the subjects responses. It has been argued that experiments utilising such equipment as shock buttons, noise machines etc. bear little relation to those responses given in real life situations.

A study by Caprara, Gargaro, Pastorelli, Prezza, Renzi and Zelli (1987) compared two different methods of assessing subjects' aggression levels. The first involved shock administration to a confederate on an 'extrasensory perception task'. Subjects could choose from among 24 levels of shock to administer to the confederate for a wrong answer. The second measure employed was that of an assessment rating. Subjects were also asked to evaluate the confederates suitability for a permanent position on the laboratory staff. Results suggested that the two different measurement techniques measured different aspects of aggressive behaviour in relation to both personal and situational variables. It was seen that delivering shocks was an anxiety-provoking situation which had a different impact on those more prone to experience anxiety than it did on those more prone to resort to aggression. It was suggested that individual differences "are far more important when subjects are offered the opportunity to deliver an explicit noxious stimulation", while "the role of the antecedent provoking condition is important when subjects are offered the opportunity to give more or less positive evaluations ". In other words it is the personal inclination of subjects (i.e.: those

who easily resort to violence and those who do not) which could play a prominent role when explicit noxious stimulation is the available response.

It would seem from these results that positive evaluations are not strictly in contrast to negative evaluations. Giving less positive evaluations is unlikely to be opposite to giving negative evaluation. Similarly Caprara et al (1987) suggested that rewards are not the opposite of punishments. Giving punishments is not the same as withholding rewards. "It is plausible that, in general, people show more restraint in being punitive or actively negative than they do in being less positive or less rewarding". These results also indicate support for the criticism that methods such as shock administration bear little resemblance to normal daily expression of aggression. For it is far more likely that aggression in daily life as a whole is manifested in behaviours of, as in Caprara et al terms, 'not doing for' or 'not giving to' rather than in the overt expression of attack or injury.

The inclusion of apparatus such as 'shock administration' could have also, by their very presence, encouraged methodological flaws or inaccuracies. For instance it is not everyday that someone is able to use electric shocks or obnoxious noise as punishers. Yet many of the research studies have used such equipment in their designs. Paradoxically while such techniques are intended to measure overt aggressive behaviour, it has been suggested that it could well encourage it. Even the mere presence of it would seem to suggest that the experimenter consents to and even ordains its usage by the subjects.

However Berkowitz and Donnerstien have been swift to respond to these allegations. They were quick to suggest that the "essential feature of the laboratory behaviour for the subjects, the meaning their actions have for them, is that they intentionally are hurting their victims". This intention to cause harm fits within the parameters of the most acceptable definition of "aggression" to date. Baron (1977) among others (Rule & Nesdale, 1974; Swart & Berkowitz, 1976; Feshbach, Stiles & Bitter, 1967) have shown that

angered subjects more often than not attempt to hurt the object or person of their provocation. Furthermore in seeking this injury, the elicitation of 'pain cues' can stimulate heightened aggression. Baron found that strongly angered subjects were far more aggressive (punitive) when they were given cues that their tormentor was in pain than when such cues where not available.

It has also been shown that measures of laboratory aggression are comparable with other indices of aggressiveness. Berkowitz (1993) has most recently suggested that because subjects focus their energies on deliberately hurting their victims, "the individuals who are strongly disposed to be aggressive in their daily encounters with others also tend to be aggressive in the laboratory". Malamuth & Check (1980) among other researchers (Williams, Meyerson & Eron, 1967; Shenberg, Leventhal & Allman, 1968) reported that aggression shown in natural settings did transpose itself comparably to the laboratory. These researchers found that male subjects with the highest scores on a scale measuring the acceptance of violence against women were later, under laboratory settings, most aggressive toward a women who had insulted them. Thus what would seem most psychologically important to the subjects is the fact that they are harming someone. Here then could be the similarity between the experimental and real-world situations from a psychological (not physical) perspective. Andison (1978) in examining the cumulation of media violence study results noted that measures such as 'degrees of shock' were seen to yield consistent, highly positive skewed results in contrast to questionnaire or overt aggression measures. Andison accepted that such apparatus was "perhaps the most scientifically rigorous measurement tool" which had been applied to the study of the effects of media violence. Andison concluded that "this fact leads us to tentatively accepting these studies' findings as more valid than others applying various different types of measurement techniques". As a closing note however to his section on 'Measures of Aggression Employed' it was also accepted that such an "assumption may prove to be unfounded as future studies and analyses delve more thoroughly into this problem".

However the debate over the continued inclusion of such noxious equipment in any laboratory study continues. More recently though proponents of laboratory work, Caprara et al (1987) raised ethical reservations over subjects use of such stimuli as noise and shock apparatus. They suggested it "was an ethically suspect procedure which encourages experimental subjects to inflict physical harm and/or to believe they are to inflict harm on another person". Concern was expressed that because guilt and aggressive anxiety were associated with the delivery of noxious stimulation, subjects' psychological welfare may be at risk to long-lasting and negative effects. Yet without more thorough investigation of the reliability of the inclusion of these apparatus it would be foolish to either disregard their possible detrimental effects on the experimental results or to ignore the possibility that they may well instigate true measures of subject aggressiveness. Further research to test the reliability of such equipment is warranted.

With these points in mind it would thus seem more acceptable that the laboratory experiment does have a useful and active part to play in the examination of the effects of film violence. In accepting this it must also be made clear however that the laboratory setting is not ideally representative of the social world within which many people act. It would be naive to think that results from such experiments could be used for an accurate estimation of the likelihood that a certain class of responses will occur in naturalistic settings. Instead they seek to test causal hypothesis and that this purpose is better served by high degrees of experimental control than by subject or setting simulations. Results suggest the possibility that such responses (in this case aggression) might exist to certain stimuli (media violence). Thus what such experiments cannot do is offer precise predictions as to the likelihood that viewers will behave aggressively after watching such programmes in their own homes. What they can indicate however, as highlighted by Berkowitz and Donnerstein (1982), "is that observed aggression can influence people in the

audience to display stronger aggression that they otherwise might have exhibited".

It is therefore unfortunate that the question of methodological validity in relation to media violence has become so contentious. These debates have diverted attention away from the very goal of the research itself. That goal has been to investigate the possible effects of media violence on viewers' behaviour. It has already been recognised that there are both long-term and short-term effects of such stimuli. With this firmly in mind it would seem illogical that the debate over methodology has become so passionate. For the recognition that media violence has the potential for both long-term and short-term effects should also imply that two different methodologies may be needed to study each of these different time effects. Thus the study of short-term effects may be better suited to one type of methodological enquiry (e.g. the laboratory), while long-term effects would be better suited to another design (e.g. the field).

Within this framework there is no need for disagreement over which single methodology is most suited to media violence research as a whole. Researchers would obviously be stretched to find a suitable design capable of assessing both long term and short term effects with the same degree of accuracy. Indeed some researchers have come to recognise the value of the two methodologies.

Obviously there would also be some overlap in the utilisation of such methodologies where under some conditions both designs could be utilised. Even under these conditions there is no need for any argument over methodological suitability. In reality the fact that investigators are employing two methodological designs should be a bonus to the validity of any findings. Provided that they were considered together the data that the two designs would yield would also be far more reliable than if it had come from one methodological angle alone. Huesmann and Malamuth (1986), have rightly stated that "causality cannot be proved or disproved from observational field studies alone", but that they

should "be viewed as supplements to the well-controlled laboratory studies".

It has been proposed that for media violence to have any long-term effect on behaviour it must primarily encourage the learning of immediate aggressive habits, which via repeated exposure are reinforced and accumulate towards more long term effects. The two methodological techniques of investigation should not be seen therefore as independent loops but as complementary links in the same process chain. It is therefore surely down to the individual researcher to select which methodology is best suited to the study of their own chosen area.

3.4 The need for physiological measurement.

As early as 1935 it was reported by Dysinger and Ruckmick that filmed events could excite audience members physiologically, particularly if they did not discount the scenes they observed or otherwise dissociated the fantasy situations from their own circumstances. Since these early findings the use of physiological methods has been woefully underused. A number of important phenomene have been reported however.

As we have already seen arousal has been clearly identified as an underlying factor in aggression following screen violence (Zillman, 1971; Berkowitz, Cochran & Embree, 1981; Thomas, 1982). Physiological indices such as systolic and diastolic blood pressure, heart rate and skin conductance have all been used as dependent measures in aggression research. Yet the inclusion of these physiological measures has been of secondary importance in many studies which have utilised such techniques. The main tendency has been to use them as auxiliary measures, in conjunction with the behavioral ones or, more importantly, as a means of assessing the impact and/or the time course of certain (especially arousal related) experimental variables. Whether because of the expense of such equipment or the lack of qualified researchers necessary for both monitoring and analyzing physiological behaviour there

has been a serious lack of experimentation involving these important indices. Those that have included such measures have yielded contradictory results. Perhaps because of a number of methodological problems associated to physiological measures and their subsequent statistical analysis, or the common fact that physiological reactions to various aggression eliciting cues are examined as antecedent processes rather than as correlates of aggressive behaviour. Caprara and his colleagues (1987) wrote that "while blood pressure and heart rate changes have frequently been associated with various aggression eliciting cues and aggressive reactions, there is no common pattern or trend among the different indices and a great intra-individual variability is noticed".

Of those experiments reported, results have indicated that not only is viewer physiology interactive with their emotionality but that these physiological reactions could augment aggressive responses via several reported processes.

As reported in Chapter 2 the Schachter-Singer Two-Factor Theory of Emotions was derived by the questioning of whether specific emotions are a function of particular bodily reactions. Schachter and Singer proposed that people search for clues to help them attach meaning to their sensations. Unconsciously they question themselves as to the nature of their feelings. However if they are aware from the start what aroused them and the subsequent feelings they are experiencing, they do not have to search for an explanation as to what is happening.

Experimental data were offered in support of their theory. Subjects were told that the researchers were investigating the various effects of a certain vitamin (which was in reality fictitious) on vision, and as a result subjects were told that they would be given an injection of the vitamin. Half of the subjects were given injections of epinephrine (which induces autonomic arousal such as heart pounding etc.) while the others were given a placebo injection. Half of the subjects given the epinephrine were informed as to the drugs side effects whereas the other half and

the placebo group were not given any information concerning possible side effects. Following the injection subjects were joined by another supposed subject who had been given the same treatment (but who was in fact the experimenters' accomplice). Both were told that the study would commence in 20 minutes and were asked to complete a questionnaire in the mean time. The confederate started to express annoyance over the personal nature of the questions asked and finally stormed out of the room after tearing up the forms.

The experimental assumption was that the aroused-uninformed subjects would be uncertain as to why they were feeling physiologically aroused. They would therefore be reliant on appropriate situational cues (e.g. the accomplice's behaviour) as to why they were having these sensations. Cued by the accomplice they would be led to believe that they too were annoyed at the questionnaire and this cognition should move them to experience anger and even display aggressive behaviour as a result.

All in all these predictions were generally supported. The naive-aroused participants were those who were seen to display the highest levels of aggressive reactions.

Research following this initial study suggested that "under limited conditions - when the individual is only moderately aroused (rather than strongly so); is in an ambiguous, difficult-to-interpret situation; and isn't sure what produced the arousal" (Berkowitz, 1993), the theory does seem to work very well. However the implication that emotional experiences apparently can be readily influenced by a persons attributions has attracted considerable attention.

It has since been suggested that it may be possible to negate people's emotional reactions by attempting to get the person to focus or attribute their perceived arousal to a non emotional source. The term 'misattribution' been applied to this notion that arousal produced by an emotion-evoking stimulus can be incorrectly attributed to a more plausible cause. However

misattribution can also increase the magnitude of an aggressive action.

Geen and O'Neal (1969) reported that following the observation of a violent film those subjects who were then exposed to a loud noise were subsequently more punitive to a fellow student than those who had heard only mild noise. This effect can occur to any arousing stimulation. Many stimulants can produce excitement. Dolph Zillman (1979, 1982) adapted this notion to his own theory concerning emotion arousal. His 'excitation transfer theory' maintains that after a person becomes physically aroused, the internal excitation usually subsides over time, so that the person typically becomes increasingly unaware of his/her inner excitement, even though it still exists. Thus the person no longer thinks about what excited them in the first place. Zillman holds that with the initial arousing event now out of mind, it could be easy to misattribute the moderate level of arousal still experienced to another stimulus occurring soon afterwards. For example suppose a person gets home after a jog in the park. His/her body may still be physiologically excited from the exercise. The person puts on the television and sees a newsflash concerning a street riot. The sight of the rioting produces a surge of emotional feeling which is interpreted as anger. The residual physical excitation from the jog has been transferred to the riot on the television supplementing the persons distaste for such violent events. Thus anger is interpreted as the person is far more aware of the most recent event (the riot) than they are of the earlier one (the jog).

3.5 The potential relationship between viewer's imagery and psychophysiological responses

Imagery and imagination may well play a part in viewers' reactions to television violence. Many people imagine or daydream about events and characters on the television and cinema screens. Yet rather than misattribute feelings of anger to daydreams of violent programmes, it has been suggested that viewers' emotions can be 'diverted' by such imagining. Jerome Singer (1975, 1977, 1980) has suggested that daydreams can act as a diversion to people's emotionality. He suggests that daydreams (which need some degree of imagery and imagination) of any kind can change mood, and can also reduce people's drives, through inattention to them. Thus unlike a 'catharsis' role for daydreaming as argued by Freud, daydreaming could be effective in reducing aggressive emotion in viewers of violent films by distracting their awareness away from their psychophysiological reactivity. By engaging in cognitive imagining, viewers are side-tracked from gleaning cues as to why they are feeling physiologically aroused. They may even misattribute the awareness of their own arousal to the fact they have been stimulated into such a state by being engaged in their own daydreaming. It may be therefore that those most fluent in daydreaming become so embroiled in their imaginations that they temporarily forget that they may have become aroused by viewing an aggressive programme. It is only later when they disengage from such processes do they consider the effects of the programme, by which time their physiological reactivity may have subsided. Yet a major fault with these suggestions is that people are not always conscious of their physiological arousal anyway.

There is another side to this however. Rather than negate aggressive emotions via diversionary processes, engaging in daydreaming could just as easily prolong the potential aggressive emotion effect. Engaging in imagery/daydreaming of the events after the programme may not only extend physiological arousal but augment what negative emotions now exist. Watching the

aggression and then rehearsing it or encapsulating it in some daydreaming process may well boost its aggressive potential, turning it into a possible double edged-weapon. Those not directly affected by the violence they have witnessed, are now also susceptible to their daydreaming which may have integrated these violent images. The person will be filled with aggressive and negative images. If as Singer maintains daydreaming can change mood, such aggressive daydreams/images could probably result in a change of emotions to mirror these imaginings. These negative moods would give negative cues as to why they may be feeling aroused, and as such the persons aggression levels may increase.

Viewers' psychophysiology has also given rise to other effects. It has been suggested by Thomas (1977, 1982) that "exposure to relatively lengthy violent television programmes may increase subsequent aggressive behaviour through emotional desensitization". Others have suggested that physiological arousal produced by media violence declines over exposure time thus cueing desensitization to such material (Lazuras & Alfert, 1964). These researchers reported that arousal generated by the viewing of a particular graphic scene of tribal rituality declined significantly over the length of the film. Yet this adaptation of the response over time could happen to any stimulus, not just to media violence - it is a non-specific effect of stimulation. Thus under these conditions physiological arousal declines over the duration of the film and the person becomes desensitized to the events depicted in it. This could have two potential effects.

Firstly the person soon becomes physiologically buffered to the effects of television/film violence. If physiological arousal is not detected either at a conscious or subconscious level to the film or programme they could come to accept the violence as 'ordinary' or 'normal' as a result. The film is not perceived as being violent as the viewer has not (presumably at a subconscious level) perceived himself/herself to be aroused by it. In other words viewers under these conditions could come to accept such events as normal occurrences in the world they live in. As a result they could

become more likely to both condone aggressive behaviour as a whole and display aggressive responses on their own part: "Exposure to a film depicting highly aggressive models may lead to vicarious extinction of anxiety and thus to lowered restraints on the part of the viewers" (Thomas 1982). Bandura (1973) had earlier pointed to the disinhibitory effects of exposure to aggressive models which may result in changes in subjects attitudes toward the legitimacy of aggression and the extinction of anxiety aroused by aggressing against another.

Secondly according to Zillman's excitation transfer theory, the person though not as conscious that he/she is physiologically still aroused, could be more susceptible to aggressive outbursts following the film. Under this conception aggressive television may prime the viewer to be subsequently more prone to aggressive responses after the film is viewed. Still physiologically aroused by the film, but no longer aware of this, the viewer may act more aggressively if faced by a frustrating, annoying or threatening situation than they would do otherwise. As Zillman suggested, because the frustrating event is perceived as being most recent, all of the persons subsequent aggression will be attributed solely to the post-film event, with the potential for causing far more aggressive reaction to that event than would occur otherwise. In Thomas's experiment (1982) angered subjects who had first seen an aggressive film were those reported to have shown the highest level of shock delivery. Yet in analysis of subject physiology it is interesting to note that it was the subjects in the neutral film condition who had not been angered who showed the highest heart rates. The subjects who had seen the aggressive film and had been subsequently angered were those with the lowest reported heart rates.

It would seem from the above research that viewer's physiology does play an important role both in the final emotional experience in reaction to television violence. The fact that the literature to date is unspecific as to the precise role that viewers psychophysiological reactions is not surprising. The inclusion of physiological measures in the field of media violence has been

sporadic, used in the main as an auxiliary measure. Scientists have only just started to seriously consider that it may play a vital part in viewer reactions to media violence. Due to this, little as yet can be accurately concluded regarding the nature of its role within the field of media violence.

The measurement of psychophysiological indicators in relation to film violence could be important. It was established in chapter 2 that both physiological arousal and cognitive interpretation would seem to play important roles in the experience of any subsequent emotional state. Aggression involves the interpretation of physiological activity; whether it occurs at a pre or post conscious level is another issue. Within the model which has been adopted for this thesis (that there is undifferentiated physiological arousal and that cognitive interpretation shapes this into a specific emotional experience) physiology comes first and interpretation later. The measurement of psychophysiological responses will allow the assessment of where in the temporal chain of aggression, relevant aspects of the situation will operate. Thus will the features which change levels of behavioural aggression in previous studies (real versus fictitious, justified or unjustified violence etc.) have a similar influence on physiology ? If there are indeed seen to be equivalent effects, then they are influencing the substrate of aggression, i.e.: physiology. If on the other hand, the distinction between these features (such as real versus fictitious violence) does not have a counter part in the physiology, the effect occurs at the interpretative level.

These shortfalls and arising questions highlight the essential need for further investigative research employing physiological techniques. The fact also that the majority of psychophysiological research on media violence has be based in the United States stresses the need for comparative work in the United Kingdom. Cumberbatch (1990) reports that in the USA violence on television fluctuates between 5 and 6 violent acts per hour compared to 2.5 violent acts per hour in the UK. "The lowest rate reported has been for the UK where in 1986 only 56% of dramatic fiction programmes (not total programmes shown) contained violence

and the rate was half of any other country on which comparable data exists..." (Cumberbatch, 1990). There has also been seen a decline in the amount of violence filtering out of our television sets. In the 1960s there were reported 4.5 violent acts per hour on T.V compared to the 1980s when only 2.3 violent acts were reported every hour. Despite these figures there is still a need for updated studies into media violence effects, and also, further research employing physiological techniques. Other methodological considerations arise from the programmes and films that experimenters have used to study the effects of observing media violence.

3.6 Types of film used

The vast majority of laboratory based studies addressing the effects of media violence have used only specially selected scenes rather than entire films or programmes. Secondly the experimenter rarely allows his/her subjects the choice of what they can view. The question of external validity again rears its ugly head to both of these issues. Not only do people outside the laboratory usually watch whole programmes/films but they also actively choose what they wish to see.

Gunter (1983) has drawn attention to this issue. In most of the research in this field, people have been considered passive recipients of the mass media and its accompanying influences. Gunter, on the other hand, suggests that people actively select and interpret what they watch both at home and at the cinema. Yet not only do people select and interpret what they watch (this choice in turn mediates the way that they react to the programmes) but they usually respond to those programmes they are more interested in and "in tune" with (ie. a person will be more interested and absorbed in a programme of his or her own choice than one they *have* to watch). Doob and McDonald (1979) reported that in areas of high crime prevalence, those residents most worried and fearful of victimization were those reporting a greater preference for violent programming. Boyanowsky,

Newtson and Walster (1974) having recorded the attendance of two cinemas following the murder of a student, found that attendance at the cinema showing a violent crime film rose sharply compared to that of the other cinema showing a literary drama. Both sets of subjects expressed a desire to learn how others dealt with attacks perhaps in an effort to prepare themselves further for personal protection. Indeed Gunter (1982) suggests the existence of "a complex relationship between personal aggressiveness and viewing preferences whereby people characterised by particular kinds of aggressive tendencies may enjoy watching certain types of violent scenarios on television more than others".

Yet most of the studies in this area have not given their subjects the choice of what they may watch. Experimenters usually decide which films will be used in their study. Such autocratic decisions may distort the behaviours they are trying to investigate.

However, again it could be argued with Donnerstein and Berkowitz (1982) that the laboratory environment has allowed the investigation of how people react to violent television to be more pragmatic and specific. The experimenter in the laboratory situation is seen to have firm control over what material is screened and is therefore in a better position to observe not only what effects different types of violent programmes have, but also to study what context such programmes have the greatest influence on subsequent aggressive behaviour.

Most of the footage used, though it may be cut and used in condensed form usually keeps its meaning. Despite using selective scenes the experimenter can still present the material such that it makes sense to the observer. Indeed more recently Comstock and Paik (1994) concluded that "we find equal effect sizes for exposure to entire programmes and to violent excerpts. This may obviate concerns regarding the choice between the two". Even if the film cannot be edited to make a shortened coherent scene, the experimenter may offer the subjects a written 'scene setter' that cues them into the material to be shown. If thorough,

experimenters using laboratory studies may also overcome some of the criticism raised against dictation of the choice of programmes in their experiments. They can pilot the material they have selected before a randomly chosen panel of people who are comparable to the intended subject pool. This serves the purpose of achieving an accurate estimate of which programmes are most appropriate for the subjects as judged by their peers.

3.7. The potentially distorting effects of boxing footage.

Experimental studies examining the effects of media violence on behaviour have frequently used films concerning prizefights such as Body and Soul, Champion and Rocky. McCormack (1984) has rightly urged caution and pointed to a number of immediate difficulties in using such material. One of the main concerns that she raises is whether the witnessed aggressive responses of subjects to such scenes are "...to the films themselves or to the anxiety and sexual ambivalence created by the spectacle of men engaged in body contact; that is, a response to a response" (McCormack 1978). McCormack argues that boxing films are primarily about 'jock appeal' which she defines as a "form of male narcissism which idealizes the body as an end-in-itself, as an object to be displayed, to be approached but not touched" and only secondarily about violence. She maintains that in contrast to many other films used for its violent material boxing is not only dull by comparison, but that it negates the possibility of moral judgements on the part of the viewer. In normal fighting scenes there are not only few rules, but there is also a moralistic element (in the sense of a 'goodie vs baddie') that influences subjects' perceptions of the violence they are watching. This is not so for boxing. Most people are aware that the boxers in the ring are not fighting over some great moral issue but that they are instead fighting for money and as such can be judged to be equal in the goodie vs baddie stakes. Thus because boxing can be perceived as a straight forward contest between two professional athletes its effects could also be misinterpreted by the experimenter.

Rather than becoming aroused physiologically to the violence depicted the viewers may instead be more aroused by the 'contest element' they perceive from the boxing match. In other words the subjects have become more reactive to the fact that it is a contest than to the fact that they have watched any violence. Most people find themselves supporting one side or the other in any sports match, regardless of the fact of whether they know anything about the sport itself or are interested in it. Thus subjects who are given boxing scenes to watch may be more reactive to the fact that they have selected one of the boxers to win the contest than they are to the violence used to achieve this victory. Boxing is meant to be violent, and a winner can only achieve victory by employing violent techniques. Subjects are obviously aware of this fact and thus would not be, I would argue, surprised or shocked by the sight of the two boxers punching one another. This in reality would be fatally problematic to the researcher. Are subjects' reactions due to the actual violence or are they respondingis to the contest element of the fight ? It could be for either reason or both. Studies which have employed such footage have been presumptuous labeling subjects' reactions as a consequence of the violence, rather than seeing them within the context of a professional contest. As McCormack (1984) states " boxing on the screen, then, offers a great deal of action that builds up to a climax where one of the protagonists is 'down for the count,' but it does not offer motivated aggression". Therefore the fact that boxing films routinize violence diminishes their potential psychological impact. She concludes that "...audiences (and presumably experimenters) seeking vicarious violence would do better with crime films or westerns".

Yet on the basis of this last statement McCormick fails to acknowledge that boxing is indeed motivated - it is instrumental in its purest form, that of financial incentive/reward. Also by the very nature of the rules of the sport boxers are clearly motivated to harm one another. Each contender would have spent months in training both physically and mentally. Each would have been mentally prepared to beat their opponent - their coaches having set their goals - that is to defeat the other boxer. The fact also that

most people see boxing as purely a sporting contest is also questionable. If this is indeed the case, how are we to explain the results of Philips (1983) and Comstock (1977)? These data suggest that aggression is most likely to occur following media violence which is construed as an intent to harm and which is also rewarded - both ingredients of boxing!

Chapter 4

Study 1

Introduction

Research concerning film violence and psychophysiology has been primarily concerned with investigating the 'arousal' properties of films as a factor underlying aggressive emotions (Zillman, 1971; Berkowitz, Cochran & Embree, 1981; Thomas 1982). Yet as we have seen in Chapter 2, only a tiny percentage of research has investigated psychophysiological responses and most of this work has been conducted in the United States. Many of these studies have used psychophysiological indicators as secondary measures. Those remaining are further weakened by the fact that continuous measures were not taken, time sampling methods having been used instead.

It is argued that any investigation using physiological techniques, must be methodologically sound and efficient. Also if we are to obtain an accurate account of the role psychophysiology might play in the media-violence relationship, measures must be taken throughout the length of experiment.

Aggression involves the interpretation of physiological activity. Analysis of psychophysiological responses during film violence allows the assessment of where in the temporal chain of aggression, relevant aspects of the stimulus-situation may operate. Thus will features such as the distinction between real or fictitious violence which has been seen to evoke differences in levels of behavioural aggression in previous studies have a comparable influence on physiology. Participants have consistently been rated as more aggressive in response to violent films that they consider as 'real' (Berkowitz & Alioto 1973; Geen & Rakosky 1973; Geen 1975; Berkowitz, 1984). Presumably if they do, then they are influencing a fundamental component of aggression. If, for example the distinction between real and fictitious violence does not have a counter-part in physiology, then the effects must be occuring at the interpretative (cognitive) level.

As has been seen even in its revised form, Schachter and Singer's (1962) theory of emotion predicts that a person's cognition molds undifferentiated arousal into a specific emotional state and that physiological arousal has the ability to amplify these final emotional states. Indeed Reisenzein (1983) states that "arousal can have an intensifying effect on emotional states". If this is true then we would expect to see the film which causes the greatest increase in physiological activity to also be the film which results in the largest emotional experience (i.e. feelings of anger!) .

It has been reported that those films considered the 'most' aggressive or to be the 'most' violent have been seen to significantly increase skin conductance and blood pressure respectively (Lazarus & Alfert 1964; Thomas, Horton, Lippincott & Brabman, 1977; Bushman & Geen, 1990). Thus it was predicted that participants' physiological reactivity would compare with behavioural reactions to real versus fictitious film violence. More specifically it was predicted that heart rates would be higher for those films considered to be 'real' in comparison to films considered to be fictitious. A similar pattern, but not as strong, was predicted for participants EDA.

Previous data have already suggested that there are no differences between males and females in their heart rate or their brain wave activities in response to film violence (Bryant & Zillman, 1984; Frost & Stauffer,1987; Miller, 1985). Nor were any racial differences expected as no cardiac differences in response to stimuli have been found to date (Martin & Venebles, 1980). As such there would be no investigations of the effects of gender in relation to reactions to film violence.

In an attempt to investigate the potential influence of imagery may the interpretation and subsequent reaction to television violence it was also predicted that viewers with 'high' and 'low' visual imagery, as scored on the Vividness of Visual Imagery Questionnaire (Marks, 1973), would differ in their psychophysiological reactions to the differing films.

Low imagers have a poor ability to imagine events, people, and scenes and thus they may not have the skills to interpret or manipulate such images. Such factors may not be as important to the high imager who has the skills necessary to both conjure, control and imagine most things. Violence perceived as 'real' may also act as an amplifier or intensifier for participants' physiology.. Thus for this experiment it was predicted that physiological reactivity would be higher for the real violent films (represented by greater increases in heart rate and electrodermal activity) and that this difference would be most pronounced for the low visual imagers.

While the context of violence has been investigated there has been little research on the effects of viewing specific events contained in the overall screen violence. While many scenes differ in their context (such as justification, motivation of the violence etc.) particular aggressive acts also differ. These can range from depictions of verbal hostility to graphic scenes of severe physical injury and fatality. If the viewer is susceptible to context effects of media violence, is it the 'overall' perception of the film aggression/violence or is it specific acts of violence/aggression that the viewer responds to? Related to this is the question of whether differing acts of violence will evoke differing responses from the viewer. More importantly will severity of the witnessed violence affect viewers' responses to it. Four films were chosen for this experiment. Two of the films were of warfare, while the other two films were of boxing. To further differentiate the violent contexts of the two types of film, the two war films depicting an execution, one real and one fictitious and the two boxing films depicting a boxer whose nose is severely broken, again one real and one fictitious will be used. It is predicted that the different film events (i.e. an execution and a broken nose) will evoke differing physiological responses with the execution resulting in the greatest increase in viewers' physiological responses. Here the viewer is exposed to an ultimate violent act - and one that, unlike in the boxing films, results in death. Further, that the real execution film as opposed to the fictitious execution film will result in the greatest increase in viewer physiological activity.

Method

Participants

53 participants were initially screened for the experiment using the Vividness of Visual Images Questionnaire (see Appendix A). Out of these a total of 32 participants were used, 18 scored as low visual imagers and 14 scored as high visual imagers. Of these, 27 were female and 5 were male. All participants were sampled from the full-time and part-time student undergraduate population and ranged in age from 19 to 40 years (mean=23).

Videotapes

Four tapes each approximately 6 minutes in length were selected from a number of tapes in the experimenter's collection. The tapes were Panasonic NV E180XP3 and were played on a Panasonic Hifi Stereo Video Cassette Recorder. Two of the tapes involved the Vietnam War, whilst the other two tapes contained boxing fights. The four films were :

The Real War film was made up of newsreel footage of the Vietnam War.

The Fictitious War film was made up of excerpts from the film "The Green Berets".

The Real Boxing film was a middleweight fight presented on an early BBC1 Sports Night.

The Fictitious Boxing film was made up of excerpts from the film "Raging Bull".

Each of the two types of tape were matched for length, events and an experimental main event. So that both the Real and Fictitious War films involved jungle fire-fights, helicopter attacks and an execution scene, which was to be the main event of the film. Each of the boxing clips was also matched in a similar manner, so that

the main event of these films was one of the boxers breaking his opponent's nose and sending him to the floor with a flurry of punches. All four of the films were edited so that the main event occurred in each case half way during the films.

Rating Scales

During the experiment participants had to complete a set of graphic rating scales for each of the four films. Five ratings were obtained: film aggression, film violence, personal involvement, personal aggression and personal violence.

Distinctions between the concepts of 'violence' and 'aggression' were presented. 'Aggression' referred to feelings of anger, and it was stated that you could be aggressive without necessarily initiating physical attack. 'Violence' referred to feelings of inflicting both physical and emotional harm on another.

Each rating was laid out in such a way that a 80mm line ran between 'Not at all' to ' Very much so '. Participants were asked to dissect the line with a pen line, so that a line nearer the 'Not at all' end of the scale on for example the Film Aggression rating would indicate that the subject did not think the film was aggressive.

See Appendix B for an example of these rating scales.

Physiological Measures

All physiological activity was measured continuously throughout the experiment using an 8 channel Grass Model 7D Polygraph. Electrodes to measure heart rate and electrodermal activity (EDA) were attached to each of the participants. Heart rate electrodes were coated with Dracard electrode gel and attached to each participant's ankles and wrists via crocodile clips. EDA was recorded using Ag-AgCl electrodes coated with a 0.05 molar sodium chloride solution in a neutral base and attached to the medial phalanges of the first and second fingers of the participant's non-dominant hand. An output lead was also taken

from the video recorder and attached to an input lead to the Polygraph. This lead marked the occurrences of sound from the video to the polygraph and thus it could be precisely seen where each of the films started and finished.

Procedure

Participants were given the following written instructions:

'This experiment involves the assessment of moods and physiological responses following the presentation of film clips depicting violent scenes. Electrodes to measure your heart rate and skin conductance will be attached to your wrists and ankles and you will be seated in a sound-proofed room. Once you have rested, and have completed the first mood questionnaire, you will be required to assess a number of film clips which will be presented to you on a television monitor.

You will be asked to watch each clip closely. After each clip you will be asked to complete a short questionnaire.

I have read the above instructions and have understood them fully. I give my consent to participate in this experiment, on the understanding that I may withdraw at any time should I wish to.

Signed: *Date:*

Upon receiving written consent, electrodes to measure heart rate and electrodermal activity were attached as specified above. At this point each participant was instructed to "make yourself comfortable and relax" and it was during this five-minute period that baseline physiological measures were taken. Following this baseline resting period participants were informed that a recap of their experimental instructions would accompany each of the rating scales. Participants were given a clip-board with questionnaires arranged in order of completion and a pen. All participants were asked to refrain from movement while the film

clips were playing. Lights in the room were dimmed but gave enough light for the completion of questionnaires.

Participants were randomly assigned to one of the film order presentations of a 4 by 4 Latin Square design. Following a 5-minute initial resting period each subject watched the presentation of the 4 film clips.

Each video clip contained in sequence:
1) A recap of the experimental instructions.
2) A 6-minute presentation of the first film clip.
3) A 2-minute period to complete the rating scales.
4) A 5-minute resting period.

Stages 2,3, and 4 were repeated for the other 3 film excerpts. During the resting periods a blank screen with no sound was presented to the participants. At the end of the experimental session the electrodes were removed. Participants were thanked and invited to ask questions concerning the experiment.

Data Reduction.

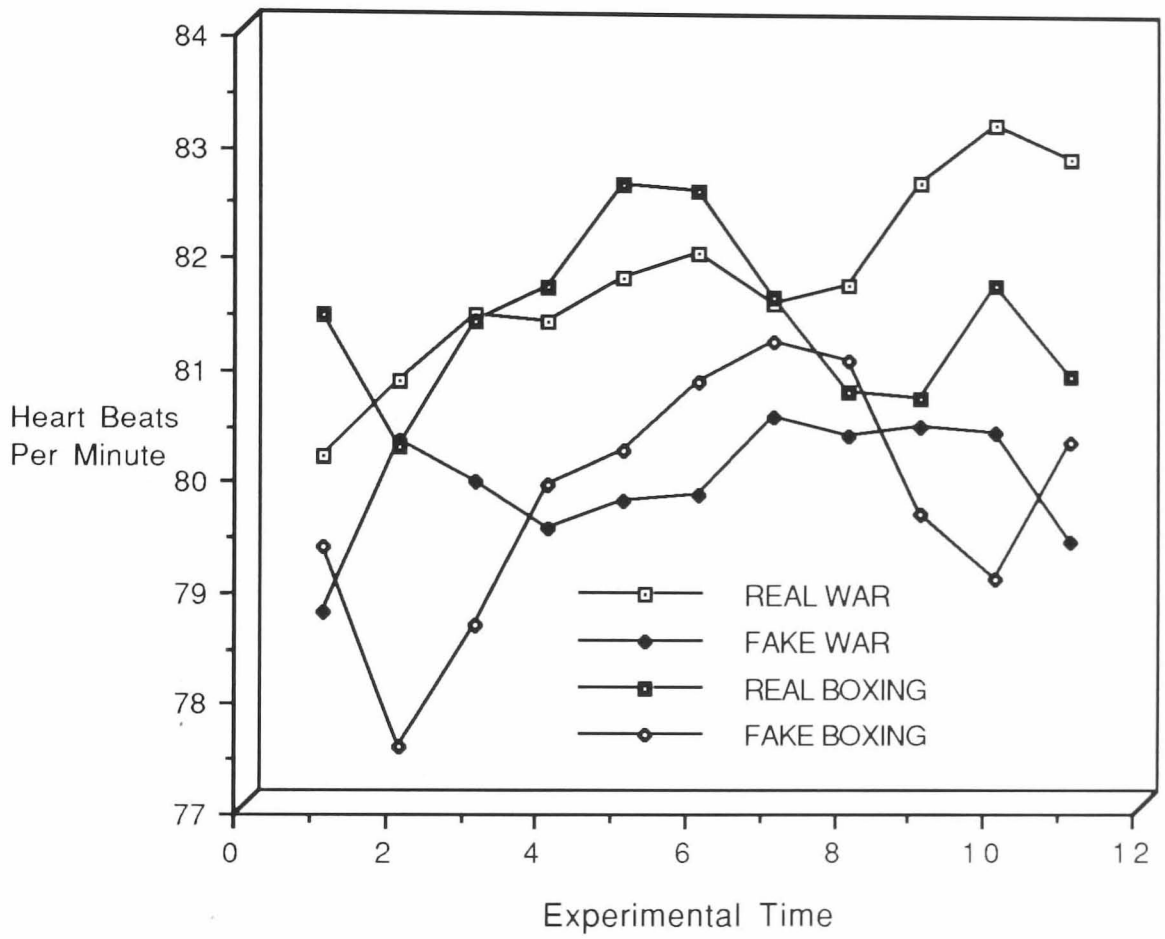
'R-waves were counted over successive 30-second periods to provide a measure of heart rate. Subsequent values were multiplied by 2 to provide a score in beats per minute. Data were also taken in the 30 second period prior to and 30 second after each films main event (i.e. the broken nose in the Boxing films and the execution in the War films). This method was also applied for electrodermal responses. Skin conductance responses were defined as amplitudes of at least 0.05uS. For statistical analysis alpha was set at 0.05. (M)Anova and Anova statistical tests were performed on the data. Independent t-tests were employed to investigate the main experimental predictions while Newman Keuls tests were utilized for relevant post hoc testing (general differences in the questionnaire ratings between the five films).

Results

Physiological Responses

Heart Rate Responses

(For the purpose of graph keys fake=fictitious)



(Each segment represents 30 seconds of film time)

Figure 4.1: Mean Heart Rates To The Four Films

From Figure 4.1 it can be seen that heart rates had increased most to the Real War film and least to the Fake War and Fake Boxing films. Initial analysis involving baseline heart rates revealed that there were no significant differences between baselines for the four films ($F(3,28)=0.643$ $P=0.594$.

Comparison of participants' average heart rates throughout the four films indicated heart rate differences between Real and Fictitious films proved to be significant ($F(1,31)=4.420$ $P=0.044$). Thus the mean differences in heart rate as depicted above showed that participants' heart rate was higher for the real films than for

the fictitious films. Results from analysis of variance for War-Boxing differences showed that there was no significant difference in heart rates over these two types of film conditions. It would seem that these heart rate findings support the general assumption that viewers become more reactive to those films/programmes that they consider as depicting actual events.

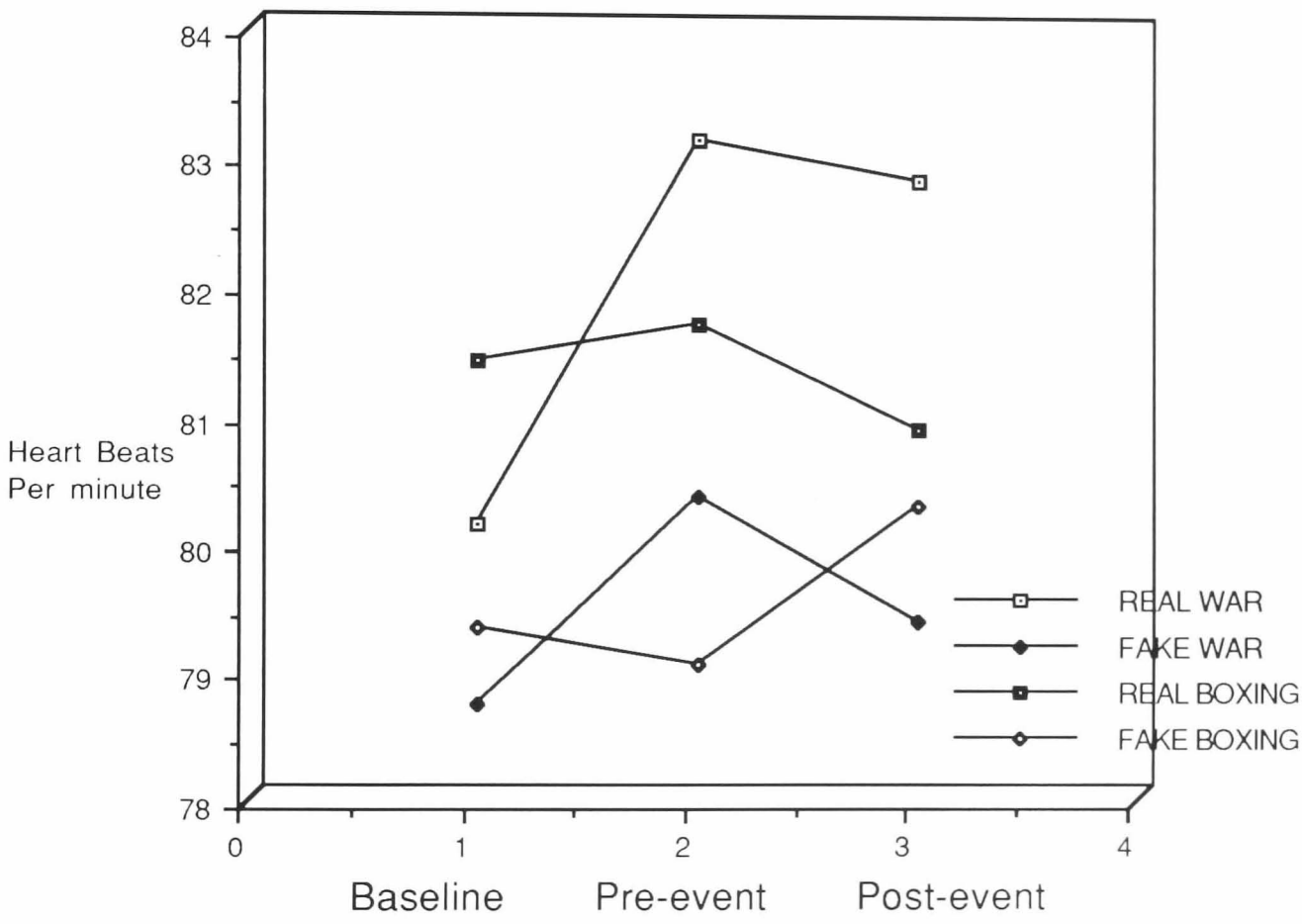


Figure 4.2: Mean Heart Rates Over The Three Experimental Event Phases

Analysis of comparisons of participants' heart rates in the baseline, pre-event and post event periods revealed a main effect of time ($F(2,62)=3.782$ $P=0.028$). The mean heart rate scores at these three periods as depicted in Figure 4.2 suggest that, in all except the fictitious Boxing Film, heart rates increased from the Baseline period to the Pre-event period and declined again after the event. Further analysis revealed that there were significant differences in participants' heart rates over these three time periods both between Real and Fictitious films ($F(1,31)=12.274$

P=0.001) and also between the Boxing and War film (F(1,31)=7.664 P=0.009). Participants' heart rates, were generally seen to change more to the Real Films than to the Fictitious Films. Participants' heart rates also seemed most susceptible to change during the War Films than during the Boxing films. It can be seen from the means in Figure 2 that heart rates increased from the Baseline phase to the Post-event phase in both of the War Films and while there was a minimal increase to the Real Boxing Film, there was a decrease over these periods in response to the Fictitious Boxing Film.

Initial analysis involving heart rate scores between imagery groups over these three experimental time phases revealed no significant differences (F(1,30)=1.044 P=0.315). However further analysis of heart rate changes between imagery groups over the pre-event and post-event periods yielded a different finding. There was a significant difference in heart rate to the War and Boxing Films by the two imagery groups (F(1,30)=4.834 P=0.036). As can be seen in Figure 3, it was the low visual imagers' heart rates that were most reactive to the Real War Film. It can also be seen that the low visual imagers heart rates are more elevated for the Real Boxing Film, while in contrast the high visual imagers' heart rates seem more elevated to the Fictitious Boxing Film. Analysis revealed that there was a highly significant interaction between imagery group and Real vs Unreal Films over time (F(2,60)=7.709 P=0.001).

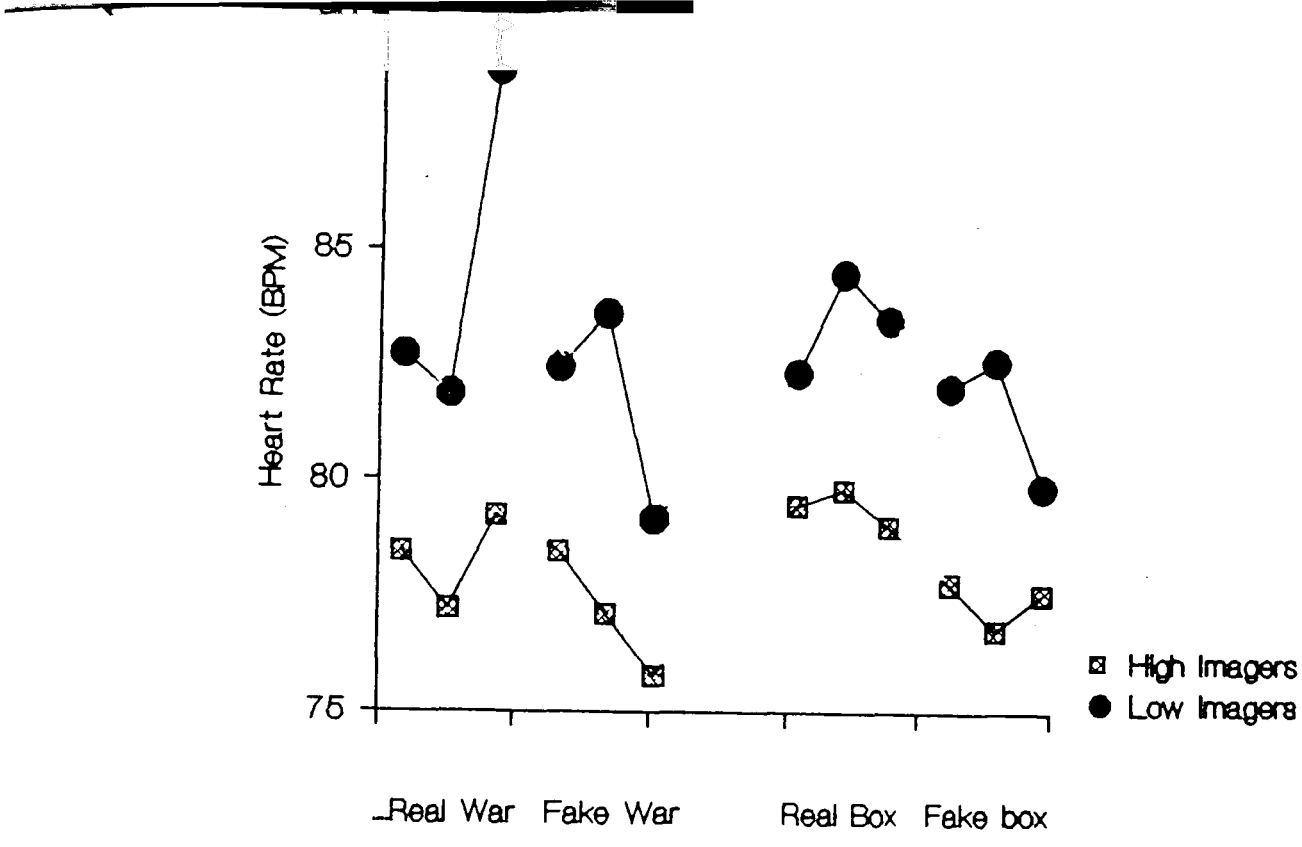


Figure 4.3: Heart Rates To All Films By Imagery Group.

Low imagers' heart rates increased significantly more during the Real Films and decreased more so for the Fictitious Films than did the high visual imagers' heart rates. Furthermore, while the high visual imagers' heart rates are seen to be fairly consistent over the Real and Fictitious Films, the low visual imagers show a more marked difference (see Figure 4.3).

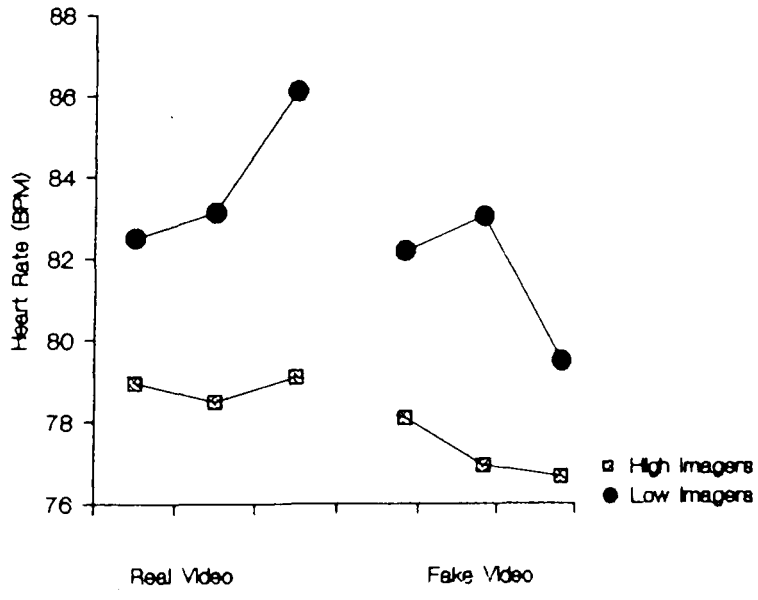


Figure 4.4: Heart Rates For Real and Fictitious Films By Imagery Group

There was also a significant difference in heart rate response between the two imagery groups for the War and Boxing Films ($F(1,31) = 13.117$ $P=0.001$). Low imagery participants' heart rates were significantly more elevated (a mean increase of 7 bpm) to the Real War Film than that of their high visual imagery counterparts (a mean increase of 2 bpm). Also it can be seen that the low imagers' heart rates decreased more to the Fictitious War Film than the high visual imagers' heart rates, decreasing by a mean of 4.427 bpm compared to a mean fall of 1.333 beats.

Electrodermal Activity (EDA) Responses

Initial analysis revealed that there were no significant differences between EDA baseline measures for the four films ($F(3, 28)=0.253$ $P=0.859$.

Analysis revealed that there were no significant differences between Real and Fake Film EDA scores ($F(1, 31)=.702$ $P=0.409$ or between the War and Boxing Film mean EDA scores ($F(1, 31)=1.535$ $P=0.225$.

Analysis of skin resistance data over time revealed that there was a significant difference in skin reactivity between the War and Boxing films ($F (1, 31) = 5.537$ $P= 0.025$) where skin resistance generally decreased over time for the War Films but increased slightly for the Boxing Films. There was also a main effect of film type on EDA responses. Participants' EDA seemed to decrease significantly more for the Fictitious Films than for the Real films (there was even a significant increase in EDA to the Real War Film). This data tentatively supports the Heart Rate results in that it is the Real films that were seen to account for the greatest increases in participants physiological responses.

However analysis of EDA changes over the three experimental periods of baseline, pre-event and post-event revealed that there were no significant differences ($F(2,62)=1.528$ $P=0.225$). EDA responses over these periods were not significant for the War-Boxing factor ($F(2,62)=0.651$ $P=0.525$), or the Real-Fictitious

dfactor (F(2,62)=0.1.238 P=0.297) nor was there any evidence of an interaction between these two factors (F(2,62)=1.099 P=0.339). These data when taken into consideration with the initial EDA results described above, suggest that rather than actual events contained at certain points in the four films, it could be the overall perception of the film type and what it portrays generally that has the greatest influence on participants' EDA changes.

Analysis of EDA baseline measures between Imagery groups revealed that there was no significant difference between groups over either time (F(1,30)=0.903 P=0.350) or over the three experimental periods (F(3,28)=0.253 P=0.859). Investigation of EDA changes within imagery groups initially revealed there to be no significant difference in changes within either group over the baseline, pre-event, post-event periods to either the War or Boxing Films (F(1,30)=2.791 P=0.105) or to the Real-Fictitious Films (F(1,30)=0.321 P=0.576). Yet further investigation using polynomial contrasts revealed that within each imagery group there was a significant quadratic change in EDA levels over the three experimental periods. Both high and low visual imagers EDA declined up to the Pre-event period and increased during the Post-event period (F(1,30)=4.831 P=0.036).

Subject Mood and Attitude Rating Scores

As participants were asked to mark an 80mm line where 0mm= "Very Much So" and 80mm= "Not At All" (see Appendix A) all Figures for the results are quoted in mm. The smaller the number therefore the stronger the mood or attitude was experienced by the subject.

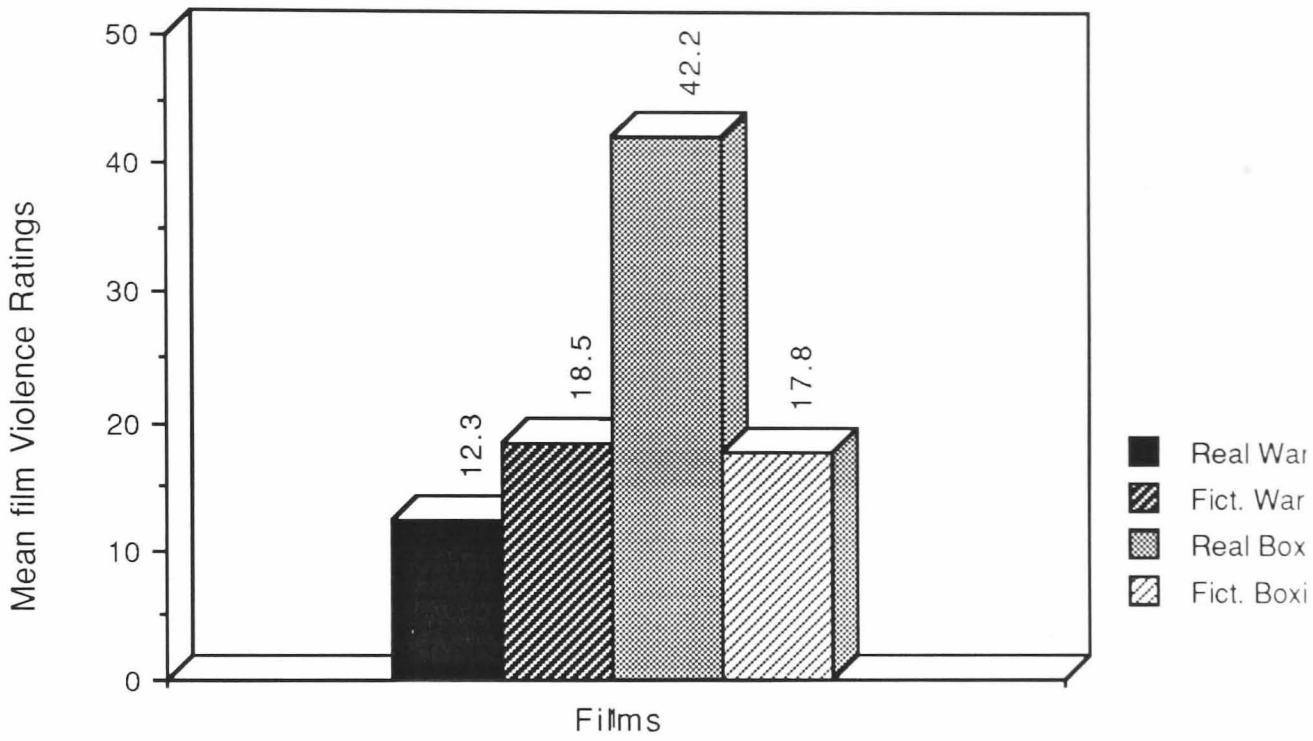


Figure 4.5: Mean Ratings Of Film Violence Across The Four Films

As can be seen from Figure 4.5 above, participants as a whole perceived the Real War clip to be the most violent, while the Real Boxing clip was rated the least violent.

Analysis of variance revealed a significant difference between participants perceptions' of violence in the War and Boxing Films ($F(1,31) = 6.706$ $P = 0.015$). Subsequent t-tests revealed that the two War Films were rated as significantly more violent than the Boxing Films ($t = -3.296$; $P = 0.001$). Yet there was no perceived differences in violent content between Real and Fictitious Films ($F(1,31) = 2.745$ $P = 0.108$). The Real Boxing Film was perceived as the least violent in content despite containing matched events with the Fictitious Boxing Film.

There were no significant differences between imagery groups' ratings across the four films, both groups rating the War Films as more violent than the Boxing Films ($F(1,30) = 0.266$ $P = 0.610$).

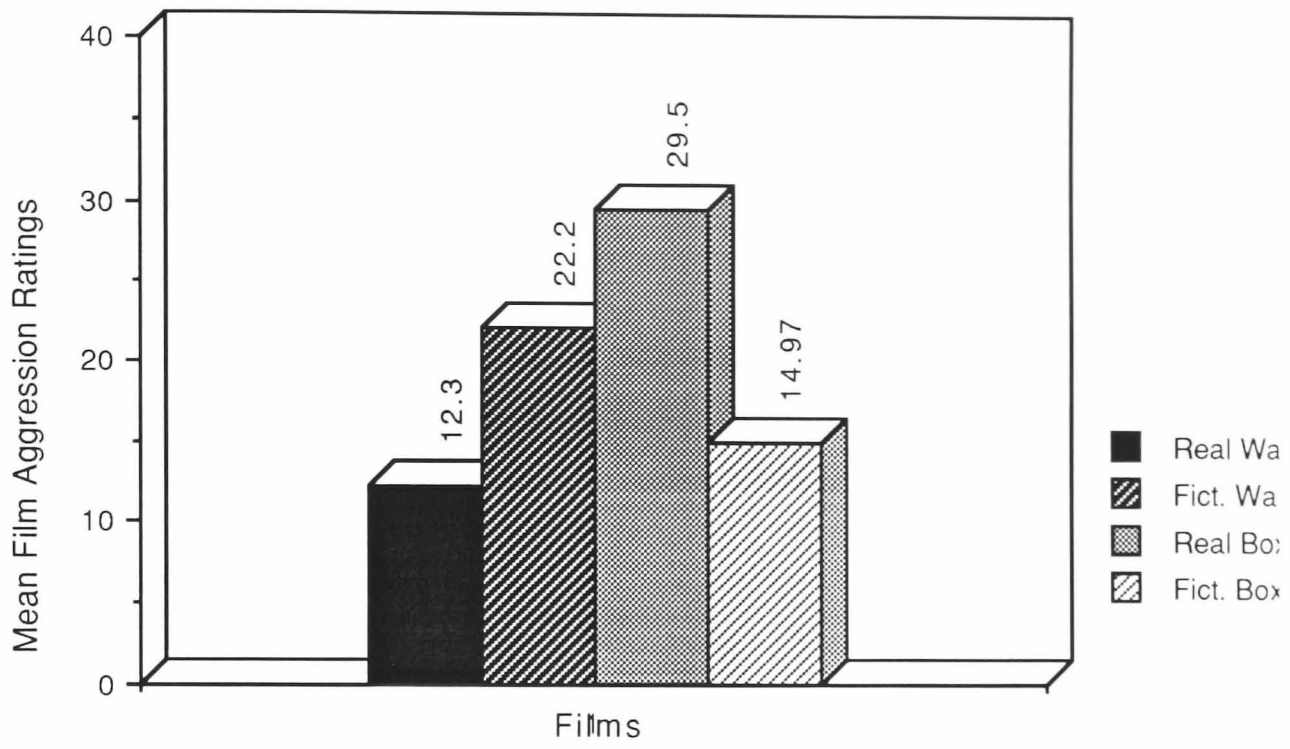


Figure 4.6: Mean Ratings Of Film Aggression Across The Four Films

Despite the mean ratings depicted in Figure 4.6 analysis revealed that there were no significant differences between participants' perceptions of aggression across either the War-Boxing factor F(1,31)=1.843 P=0.185) or the Real-Fictitious factor (F(1,31)=0.525 P=0.474). However there was a two-way interaction between War-Boxing and Real-Fictitious Films(F (1,31)=6.141 P=0.019). It can be seen from Figure 4.6 participants' ratings of how aggressive the films were highest for the Real War Film and least for the Real Boxing Film. Subsequent post hoc tests (Newman Keuls) revealed that both the Fictitious War and Real Boxing films were rated as significantly less violent than either the Fictitious Boxing or Real War films. Also the Real Boxing Film ratings were significantly less than the Fictitious War Film.

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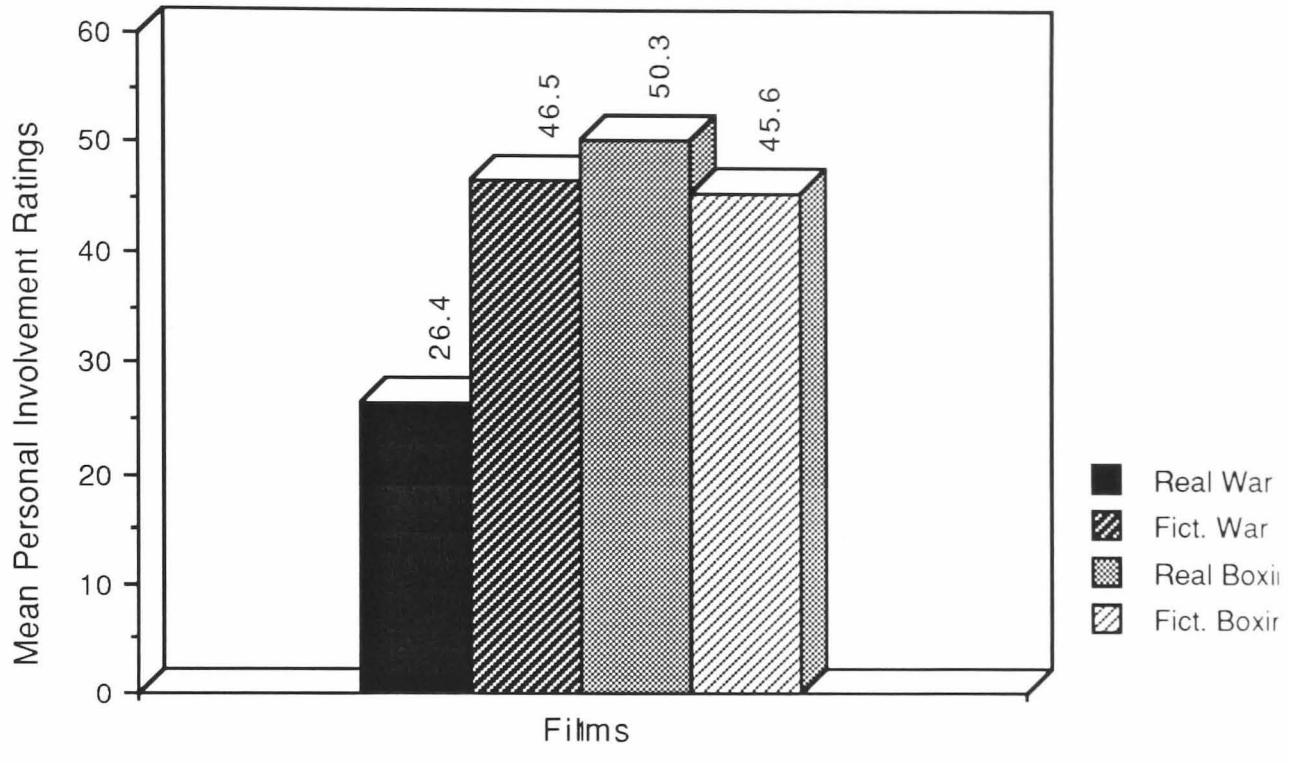


Figure 4.7: Mean Ratings Of Personal Involvement Across The Four Films

Preliminary analysis of participants' ratings of how involved they were during the four films (see Figure 4.7) suggested that while they rated themselves as most involved in the events of the War Film, it was the Real Boxing film that they rated themselves as least involved in.

Analysis of the this rating revealed that there was a two-way interaction between the War-Boxing and Real-Fictitious Films ($F(1,31)=6.315$ $P=0.018$). Subsequent t-tests revealed that participants rated themselves significantly more involved in the War Films than the Boxing Films ($t=-3.01$ $P=0.003$). Differences in ratings of personal involvement between Real and Fictitious films were not significance ($F(1.495)=1.495$ $P=0.231$). There were no significant differences evident to either Film Reality or Film type between the two imagery groups ($F(1,30)=0.479$ $P=0.494$).

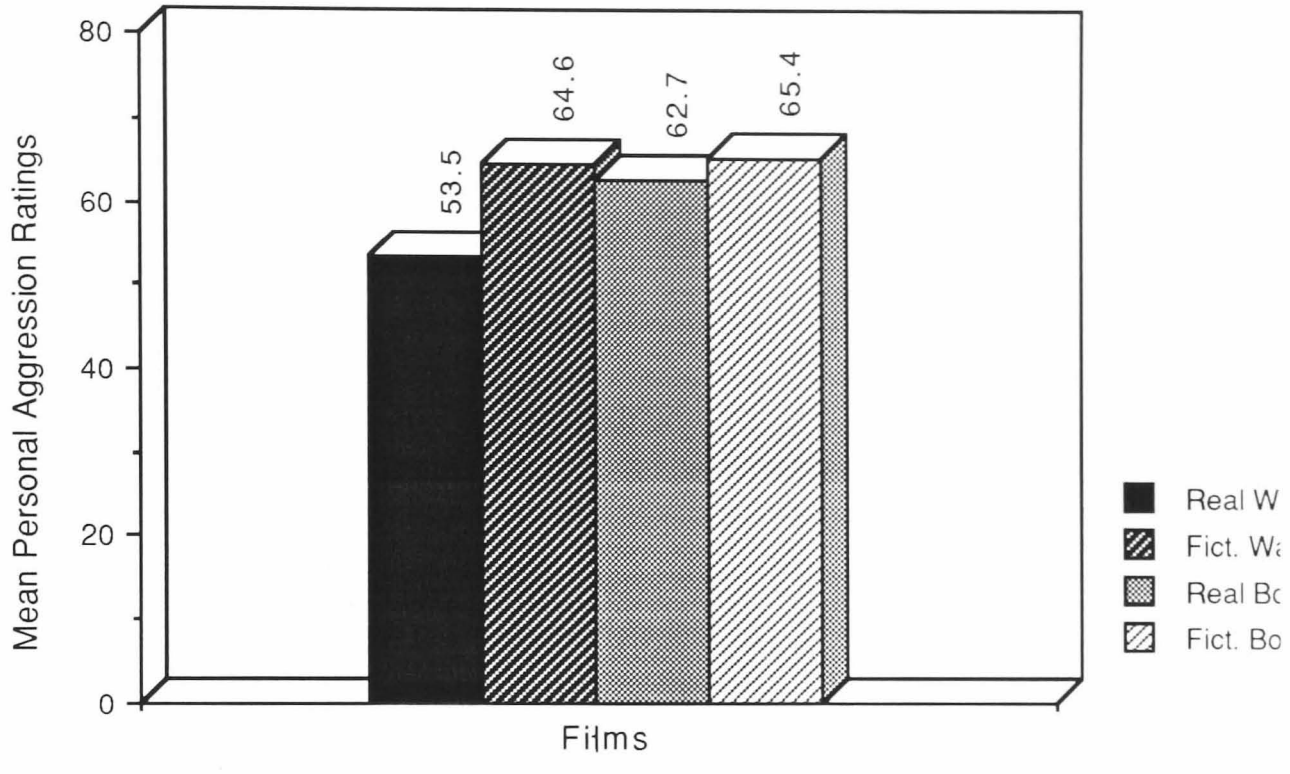


Figure 4.8: Mean Ratings Of Personal Feelings Of Aggression Across The Four Films

The means shown above in Figure 4.8 suggest that participants rated themselves as feeling more aggressive to the Real Films in general, and inparticular to the Real War Film. The mean ratings of how aggressive participants felt during the two Fictitious Films, regardless of whether the context consisted of boxing or war, were extremely similar.

Further analysis revealed that there was a significant difference in participants' mean ratings of aggressiveness across the Real-Fictitious factor ($F(1,31)=8.964$ $P=0.005$). However subsequent t-test results showed that differences between Real and Fictitious Films just failed to reach significance ($t=1.183$ $P=0.069$). Yet Newman Keuls tests revealed that the Real War film produced significantly higher personal aggression ratings than the other three films. The difference between ratings on the War-Boxing factor just failed to reach significance ($F(1,31)=3.661$ $P=0.065$). There was no significant interaction between film content and the

Real-Fictitious variable (F(1,31)=3.029 P=0.092). Also there were no significant results involving imagery group .

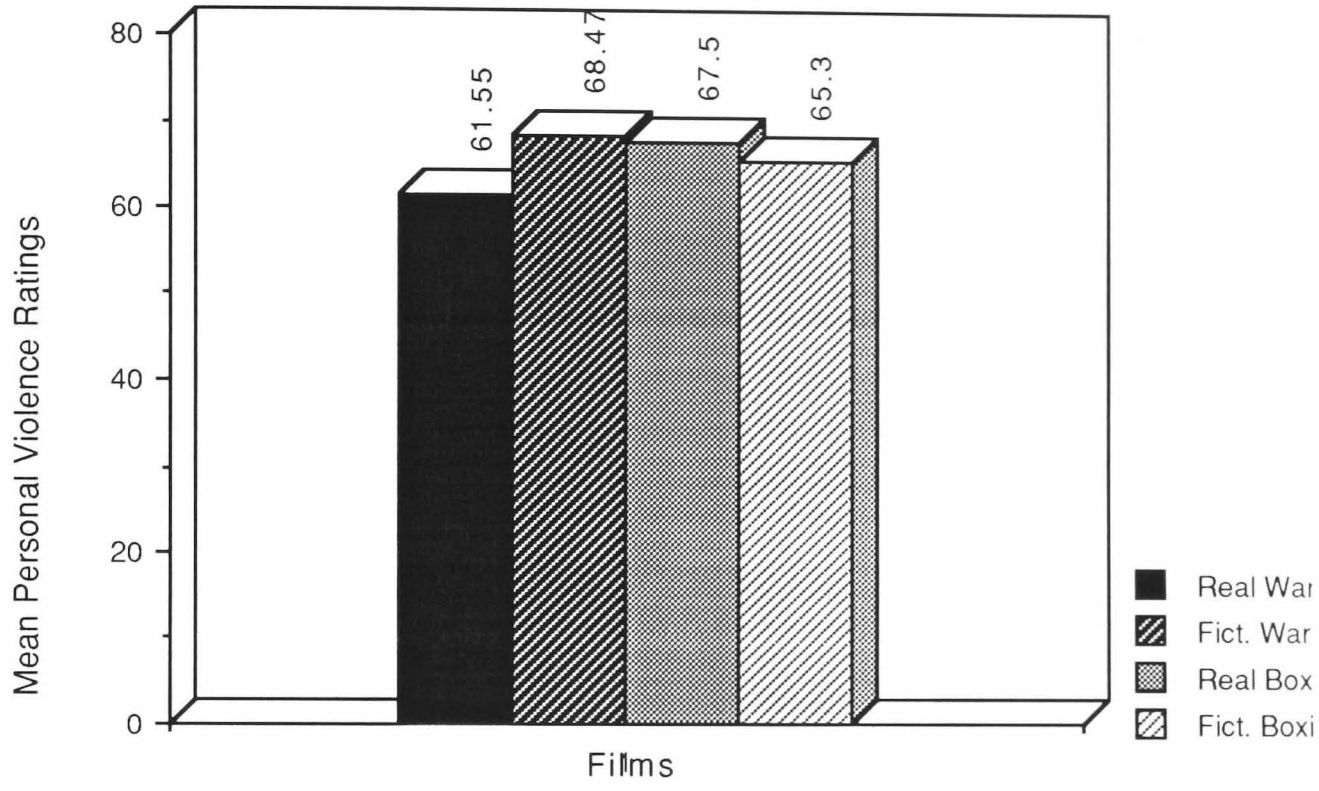


Figure 4.9: Mean Ratings Of Personal Feelings of Violence Across The Four Films

Analysis revealed that there were no significant interactions between Content and Reality (F(1,31)=1.161 P=0.29) on participants' ratings of personal violence. Interactions between Film Content and Reality failed to reach significance (F(1,31)=3.794 P=0.061).

Discussion

Overall analysis of participants' heart rate responses to Real versus Fictitious film violence revealed a significant difference in this physiological measure. As can be seen in Figure 4.1 participants' heart rates were significantly more elevated during the Real violence as opposed to the Fictitious violence films. This

effect was also evident but to a lesser degree in the EDA analysis. It was observed that though participants' EDA responses generally declined, there was a significantly lesser decline for the Real War film and even a slight increase for the Real Boxing film. Differences were also evident in participants' heart rates between the War and Boxing films. Heart rates in the War films showed a significantly greater increase from baseline measures than in Boxing films. These results lend further support to the existing literature which suggests films considered to be documenting real violence have the greatest impact on the viewers' emotional and physiological reactivity (Feshbach, 1972 ; Meyer, 1970; Berkowitz and Alioto, 1973; Geen and Rakosky, 1973; Geen, 1975). The fact that the film events were matched and that the only difference between them was the perception of real vs fictitious violence points to the influential role of this variabe in relation to audience responses to media violence.

More importantly this distinction between real and fictitious violence was seen to produce differences in physiology suggesting that factors which have been seen to change levels of behavioural aggression in previous studies have equivalent effects on viewers' psychophysiological responses. This suggests such factors influence an important component of aggression, ie the underlying physiology. If this is true then aggressive responses do not stem from cognitive interpretation alone but also from physiology. Related to this is the proposal by Schachter and Singer (1962) and later, in a slightly modified form, by Reisenzein (1983), that increases in physiological activation can act as amplifiers of emotional states. Thus in relation to media violence we would expect to see the film which causes the greatest increase in physiological activity also to be the film which creates the largest emotional experience (i.e. feelings of anger etc.). It has been shown that the Real War film accounted for the greatest increases in participants' heart rates . From Figures 4.8 and 4.9 it can also be seen that the Real War film consistently accounted for the highest ratings of personal aggression and personal violence. These results add, albeit cautiously, support for the hypothesized intensifying effects of physiology.

Results from the analysis involving physiological activity and the two visual imagery groups proved interesting. When considering the two visual imagery groups' physiological responses seperatley and in comparison to the overall experimental participants' responses, a similar pattern can be observed. The two imagery groups' physiological responses were more reactive (for heart rate) or were less unreactive (for EDA) over time within the film clips.

However when we consider heart rate responses of the two visual imagery groups more closely we find that analysis involving the two war films supports the initial experimental predictions. As can be seen from Figure 4.3, it is the low visual imagers whose heart rates have increased 5 more beats to the real war film than the high visual imagers. As predicted their heart rates have increased most to the events of the real war film. It was also the low visual imagers who had the highest decrease in heart rate to the Fictitious War film, 4.4 beats compared to 1.3 beats for the high visual imagers. Thus it would seem that participants' visual imagery ability does play an influential role in viewers' reactions to screen violence.

Heart rate data from the two Boxing Films are also generally supportive of this. While both imagery groups had similar decreases in heart rate to the real Boxing Film, it was again the low visual imagers who were less responsive to the Fictitious Boxing Film (whose heart rates fell by 2.7 beats) compared to the high visual imagers (whose heart rates fell by 1.8 beats).

Perhaps the low visual imagers, faced with stark, violent images lack the necessary skills to emotionally distance themselves from them. This could result in their visual imagery system becoming overloaded could in turn evoke other violent thoughts and cognitions via association networks as proposed by Berkowitz. In the case of the Real War Film, the low visual imagers may not have the imagery skills to control the very real and graphic images of violence it portrays. Their visual imagery system

perhaps becomes overloaded and as such sends warning signals to both their physiological arousal mechanism and their cognitive interpretator. As suggested in Chapter 2 their visual imagery would act in such a case as an amplifier to the violent events depicted in the film. As their limited visual imagery capacities become drenched in images of violence the low visual imager may experience a pseudo-threatening situation which, in turn, activates increased physiological arousal in preparation to cope with this perceived threat.

This could explain why the results of this experiment show a difference between visual imagery groups across the real-fake dimension. The low visual imager can relate more readily to the images of real violence - they do not need to evoke previously encoded images for sources of referral or context. The images are real and are therefore in context and easily accessible to the low visual imager. The events happened and no visual imagery skill is needed to transpose these images into the possibility of real life existence. Visual imagery skill is needed however in the case of the interpretation fictitious violence. Here the low visual imager has to imagine the possibility that such events could occur in the real world. Here visual imagery skills are needed to transpose these fictitious images in the minds eye as feasible real-life events. Thus the viewer's cognition assesses whether such fictitious events could happen in real life and one of the methods of doing this is by trying to visualize the events in comparable real life settings or scenarios. Thus the less realistic the images, the less likely it is that the low imagers will be able to relate to them. Because they lack the visual imagery skills to imagine them occurring in actuality, low imagers may dismiss fictitious events as irrelevant.

The high visual imager in contrast does have the skills necessary to transpose fictitious images into the possibility of real life existence. They can transform fictitious images into real life scenarios. Indeed studies have shown that participants with high imagery capacities tend to incorporate imaginary events as actually perceived more than those participants with lesser

imaginal capacities (Johnson, Taylor & Raye,1979; Johnson & Raye,1981; Finke, Johnson & Shyri, 1988). The fact that the high visual imagers' heart rates were more elevated to the fictitious violence in this study provides support to such work. High visual imagers are not disadvantaged by fictitious events and the distinction between real and fictitious has less impact on them. They have the skills to imagine the possibility that imaged events might actually occur in real life. Indeed the heart rates of the high imagers are less affected by the real-fictitious dimension than are the heart rates of the low imagers.

The fact that the Real Boxing films failed to have as much impact on participants' physiology can be explained by reference to the participants' interpretation of these films. Most people would rate the events and images depicted in war films to be generally more dramatic, more novel and on the whole more aggressive. Thus war is usually interpreted as destructive and final, and borne out of hate - while though boxing could be considered as destructive it is borne more out of commercial wealth than it is of hate and, normally, it is not final. The contenders in a boxing match are generally concerned with earning money and to do this they need to win. The viewer is aware of this fact via their cognitive evaluation of this information. Thus with boxing viewers, though faced with aggression and violence, are aware that they are watching a sporting contest whose participants are earning a living. Such perceptions influence images of violence in boxing films.

Yet this is not so in scenes of war. Here the viewer is faced with very serious and unpredictable aggression and violence. The contenders are not guided by a referee nor are they, usually, driven by money. Thus the perception of the two kinds of event is vastly different. War is pervaded in every aspect with very serious acts of aggression, destruction and death. Boxing produces "pseudo" aggression - the viewers are aware that once out of the confines of the ring the boxers will not act in the same manner and some are even friends. Boxing is a profesion or job. War is a state institutionalised, international violence.

This knowledge, in my opinion, buffers the viewer from the negative effects of watching boxing violenceon television. The viewer's arousal is directed away from the aggressive element of the match and towards the outcome of the contest itself so that any increase in physiological arousal that is experienced is attributed by the viewer to his/her desire for one of the contenders to win (or lose). This is supported by the fact that all participants consistently rated the real boxing film to be that which contained the least levels of violence and aggression and that which accounted for the least amount of interest. The above explanation is further supported by the fact that the real war film was consistently rated by all participants and by both imagery groups to be that which contained the highest levels of violence and aggression and that which accounted for the greatest levels of involvement.

In contrast subsequent analysis of the ratings data across the four film conditions suggests that it is the distinction that participants make between the type of film, as well as the perception of reality that resulted in a joint influence on perceptions and attitudes towards the films.

This is evident in Figures 4.6, 4.8 and 4.10. It can be seen that participants rate the Real War Film as that with the most aggressive and violent content and rate themselves as being most involved with this film. It can also be seen that the Fictitious Boxing Film is that which is rated as containing the next most aggressive and violent content, and is also seen to be rated as which has evoked the second highest levels of self reported involvement. Next follows the Fictitious War Film and lastly the Real Boxing Film, which is seen as that containing the least aggressive and violent content and subsequently rated as that which has evoked the least subject involvement. It rated as accounting for the second highest level of reported feelings of aggression in the participants, with the Real War accounting for the highest levels, yet differences between it and the third and fourth highest aggression levels are minimal. It is also rated as the

third film in accounting for viewer's feelings of violence, again being only minimally higher than the film accounting for the least levels of feelings of violence. The existing literature would have predicted that the Real Boxing Film should have been rated similarly to the Real War film in all of these five rating scales. These results lend further support for the suggestion that increases in viewers' physiological arousal act as amplifiers to any final emotional states that results from viewing media violence. More importantly they also highlight the potential importance of the mediating role that viewers' cognitions could play in the overall process.

Thus whilst it was the Real films that increased participants' heart rates and at least a significantly lower decrease in participants' EDA, it would seem that it was only the Real War film that had a similar effect on increasing subjects' cognitive assessments. It can be seen that the Real War film was not only consistently rated as being that which was rated highest on all of the five rating scales, but that it was also rated much more highly than the other three films. In contrast, while the Real Boxing clip accounted for increased physiological reactions, it generally produced the lowest ratings in viewer ratings of how violent, and aggressive the film was perceived and how involved they were. This suggests two things. Firstly participants whose physiology and cognitions are both highly affected by the screen violence are those most at risk of feelings of violence and aggression. Secondly, in contrast, participants who are only affected in one of these domains, either that of physiology or cognition are not as susceptible to increased feelings of aggressiveness.

The Real War film produced the greatest increase in physiological reactivity and was also interpreted as containing high levels of violence and aggression and rated as highly involving. As a result it produced by far the highest levels of self-reported feelings of aggressiveness. The Real Boxing film increased physiological reactivity, but was not perceived as containing as much violence and aggression as the Real War film, nor was it seen to evoke as high a level of involvement. It thus produced low levels of

aggressive feelings. The Fictitious War film accounted for no change in physiological reactivity, accounted for only a moderate interpretation of how violent or aggressive it was and for low levels of involvement. It too produced low levels of reported aggressiveness. Lastly the Fictitious Boxing film, though it had the second most reported levels of violent and aggressive content and was rated as the second most involving, produced a small decrease in viewers' physiological reactivity. Thus like the Real Boxing and Fictitious War films, it produced low levels of subject reported aggressiveness.

In summary, as predicted, participants' physiology was most reactive to those films perceived as realistic (the Real War and Real Boxing films). This supports the suggestion that physiology is susceptible to factors that have been seen to change levels of behavioural aggression in previous studies. It was also evident that physiological arousal also seemed to act as an intensifying agent for final ratings of personal feelings of aggression and violence. Also, as predicted, while both visual imagery groups showed a greater increase in overall physiology to the Real War film, the low visual imagers' heart rates showed an even greater increase than the high visual imagers heart rates to this film. This suggests that it could be low visual imagers who are the more susceptible to the effects of real screen violence.

Chapter 5

Study 2

Introduction

It is interesting to consider that research has not adequately addressed the important issue that different kinds of television violence could have differing effects on subsequent viewer responses. Results from Study 1 indicate that the four experimental films utilised all produced different physiological responses and mood ratings. This suggests that viewers' responses are influenced by the particular characteristics of the violence they watch and that they do not show a general response to violence.

This second study attempted to further examine the role of the viewer's interpretation of the content of differing types of film violence. It has been suggested that the context of the film affects the viewer: the greater the viewer relates to the situation depicted in the film (Geen & Stonner, 1973); the characters in the film (Berkowitz & Geen, 196); the motivation of the violence depicted (Goldstein & Arms, 1971; Arms, Russell, & Sandilands, 1979) or even the film environment (Wakshlag 1983), the greater the viewer's aggressive responses after watching it. Research needs to address the issue that there are different kinds of programmes containing violence and aggression. For example it is not only *films* that portray violence, many of the TV *"Soaps"* contain scenes of verbal if not physical aggression. Do viewers respond in exactly the same way for all types of situational violence portrayed on their televisions, or do they react differently to certain programme types?

In Study 2 five experimental films were utilized. The five experimental films were: A Real Vietnamese war film; a Fictitious gang brawl; a Real boxing match; a nature film depicting an aggressive fight for leadership of a group of monkeys; and lastly, a Tom and Jerry cartoon. It was predicted that the five films would evoke differing mood rating responses from the participants. It was further predicted that the cartoon would yield the smallest increases in participants' negative mood ratings and the largest increases in positive mood ratings. The events it depicted, while

being violent, were highly unrealistic. The aesthetic qualities of the cartoon, and the use of bright colour and slapstick humour would serve to neutralize the viewer from the violence it depicted.

This study also further examined the relationship between visual imagery differences and viewers' reactions to television violence. In the first study a significant difference occurred in heart rate activity between high and low imagery groups. The low imagers showed more elevated heart rate increases in comparison to high imagers to real violence. Would the different types of situational violence also result in mood rating differences between these two groups. If differences are evident then it would appear that visual imagery has a part to play in the cognitive appraisal of media violence. However if their are no differences between the two groups mood ratings then visual imagery would seem to have an influential role only upon physiological activity.

Method

Participants

108 participants were initially screened for the experiment by completing the Vividness of Visual Imagery Questionnaire (VVIQ). Out of these a total of 36 participants was used, 18 of whom were scored as low visual imagers and 18 of whom were scored as high visual imagers. Of these 36 participants, 18 were female and 18 were male, with equal numbers of females and males in each group. All participants were sampled from the full-time and part-time student undergraduate population and ranged in age from 19 to 40 years (M=24 years).

Videotapes

Five films each approximately 7 minutes in length were selected from a number of films in the experimenter's collection. These were arranged into a 5 by 5 Latin Square and recorded on video tapes. The tapes were Panasonic NV E180XP3 and were played on a Panasonic Hifi Stereo video cassette recorder.
The 5 film clips were:

1. Fictitious Aggression - A street fight between two rival gang members taken from the film 'Warriors'.

2. Sport Aggression - A boxing fight between Mike Tyson and Trevor Berbick.

3. Cartoon - A ' Tom and Jerry' cartoon depicting a typical chase and fight sequence.

4. Real Aggression - Newsreel footage of two men fighting in the Vietnam War.

5. Animal Aggression - A Fight for group leadership between two male primates.

Procedure

Each participant was seated alone in a sound-attenuated laboratory, in a comfortable chair six feet away from a television monitor. Participants were given the first of their 6 Nowlis Mood Adjective Checklists (NMAC) to complete (See Appendix C). Once participants had completed this first NMAC they were given the following instruction sheet to read.

' This experiment involves the assessment of moods following the presentation of film clips depicting violent scenes. Once you have rested you will be required to assess a number of film clips which will be presented to you on a television monitor.

You will be asked to watch each clip closely. There will be a five minute interval between each film clip which will allow you to complete a short questionnaire which will be provided for you attached to a clip board.

I have read the above instructions and have understood them fully. I give my consent to participate in this experiment, on the understanding that I may withdraw at any time should I wish to.

Signed: *Date:*

Upon giving written consent, participants, were told that a recap of their experimental instructions would accompany each of the questionnaires. Participants were given a clip board with the questionnaires arranged in order and a pen. Participants were allowed a sound check in which they were able to adjust the sound from the television to suit their individual needs. Lights in the room were dimmed to gave enough light for the completion of questionnaires.

Participants were randomly assigned to one of the film order presentations of a 5 by 5 Latin square design. Following a 5-minute initial resting period each subject watched the presentation of the 5 film clips.

The video contained in sequence:
1) A recap of the experimental instructions.
2) A 7 minute presentation of the first film clip.
3) A 3 minute period to complete the NMAC.
4) A 2 minute resting period.
Stages 2,3, and 4 were repeated for the other 4 film excerpts. During the resting periods a blank screen with no sound was presented to the participants.

Rating Scales

During the experiment participants had to complete a set of mood rating scales for each of the five films. Four negative and four positive mood ratings were selected from the NMAC as indicators of how positive and negative moods fluctuated over the five films. Four positive moods (carefree, warmhearted, kindly and pleased) and four negative moods (sad, angry, clutched up and sorry) were used to analyze subject mood changes to the differing film clips.

Results

Analysis of Subjects' Mood Ratings

Data Reduction.

For statistical analysis alpha was set at 0.05. Anovas were performed on the data. Newman Keuls tests were utilized for relevant post hoc testing.

In order to determine the effects of each film on subjects' mood ratings all mood ratings taken during the films were deducted from baseline ratings.

Results from repeated measures Analysis of Variance revealed that mood ratings just failed to be significantly different between males and females ($F(1,32)=3.801$ $P=0.06$) and proved to be non-significant between visual imagery groups ($F(1,32)$ $P=0.790$).

Results from Multivariate repeated measures Analysis of Variance ((M)Anova) revealed that there was a main effect of film upon mood ratings overall ($F(4,29)=68.237$ $P=0.001$) and upon negative and positive mood ratings ($F(4,29)=17.829$ $P=0.001$). Overall negative mood increases were larger than positive mood decreases. It was also evident that for each of the eight moods there was a main effect of film upon participants' ratings ($F(12,21)=11.909$ $P=0.001$). Analysis of mood ratings between imagery groups over the five films revealed that there were no significant differences ($F(12,21)=1.905$ $P=0.095$) nor were there any significant differences between these groups in their overall positive and negative mood ratings over the five films ($F(12,21)=1.294$ $P=0.292$).

Negative Mood Analysis

Overall Negative Mood Ratings

This analysis investigated subjects' overall negative mood ratings to the five film conditions. Thus the four negative moods were pooled together to get an overall negative score. These mean overall scores are depicted in Figure 5.1.

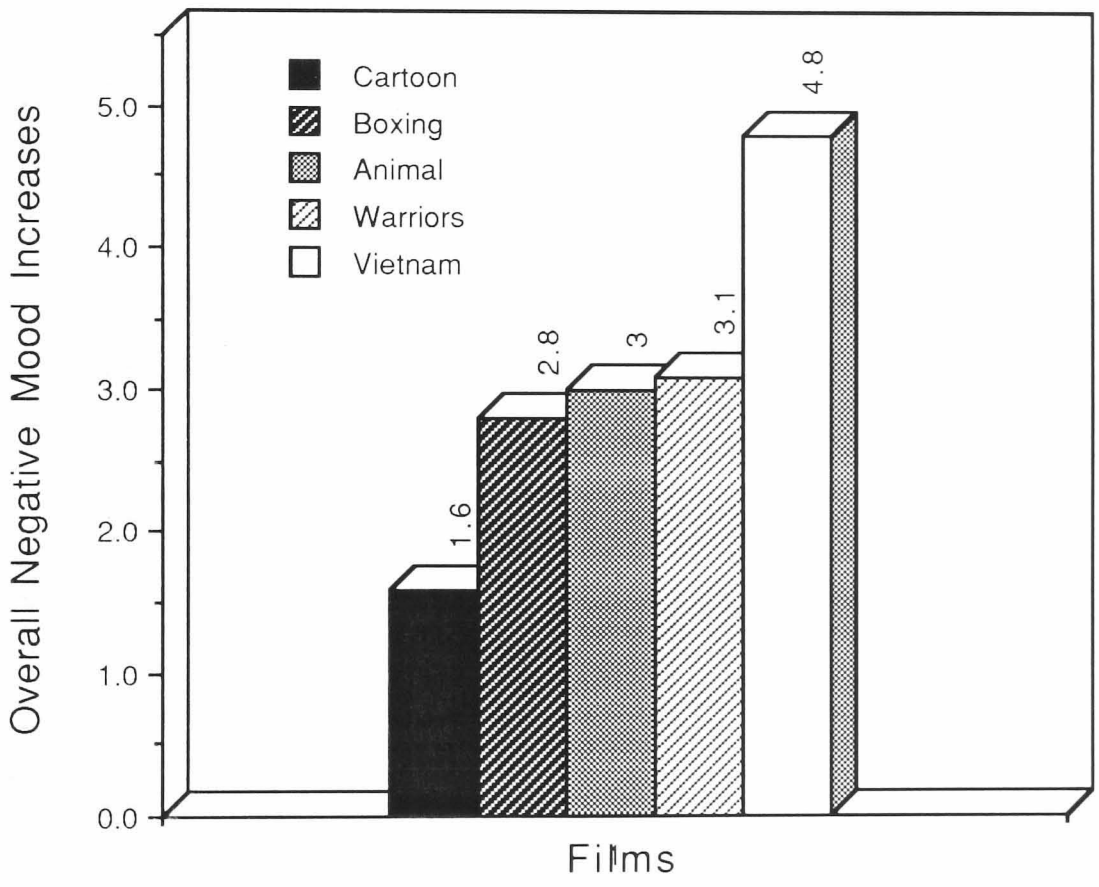


Figure 5.1: Mean Negative Mood Rating Of All Subjects To All 5 Experimental Films.

Analysis of variance results revealed that there was a main effect of film on overall negative mood scores ($F(4,174)=31.902$ $P=0.001$). It can be seen from Figure 5.1 that it is the Vietnam War film that produced by far the highest ratings in overall negative mood and post hoc tests (Newman Keuls) revealed that the overall negative mood ratings were significantly greater for this film than for any other. It was also evident that negative mood ratings for the Cartoon were significantly different compared to the mean ratings for all of the other four films.

Though the Cartoon produced the least overall negative mood changes as predicted, it is interesting that it still increased subjects' negative mood scores compared to baseline measures despite the fact that it is generally classified as light-hearted children's entertainment.

Individual Negative Mood Ratings

Angry

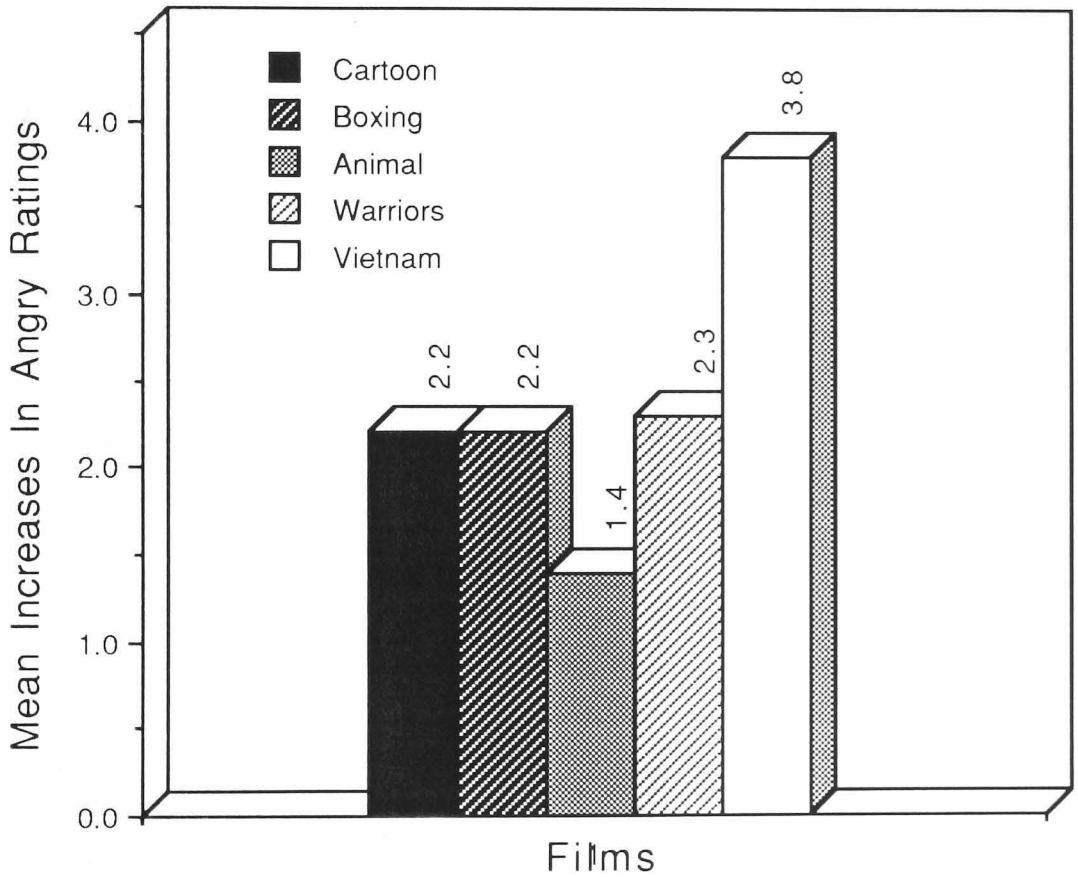


Figure 5.2: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Angry They Perceived Themselves To Be Over The 5 Experimental Films.

As it can be clearly seen from Figure 5.2, the five films produced different levels of anger. As predicted it was the Vietnam War film that produced the greatest increase in this mood and the Cartoon that produced the smallest. The Boxing clip evoked smaller ratings than either the Vietnam or Warriors films but more so than either the Animal or Cartoon films. Subsequent analysis of variance revealed that there was a main effect of film on the mood ratings ($F(4, 36) = 23.229$ $P=0.000$). Although all the

clips contained high levels of physical violence each was rated differently as to how angry it made the subjects rate themselves to be. Subsequent analysis from a Newman-Keuls post hoc test revealed that mean anger ratings for the Vietnam War film were significantly different from those evoked by the four other films. There were no other significant differences. Thus participants rated themselves to be significantly more angry to the Vietnam War film than for any of the other films.

Sad

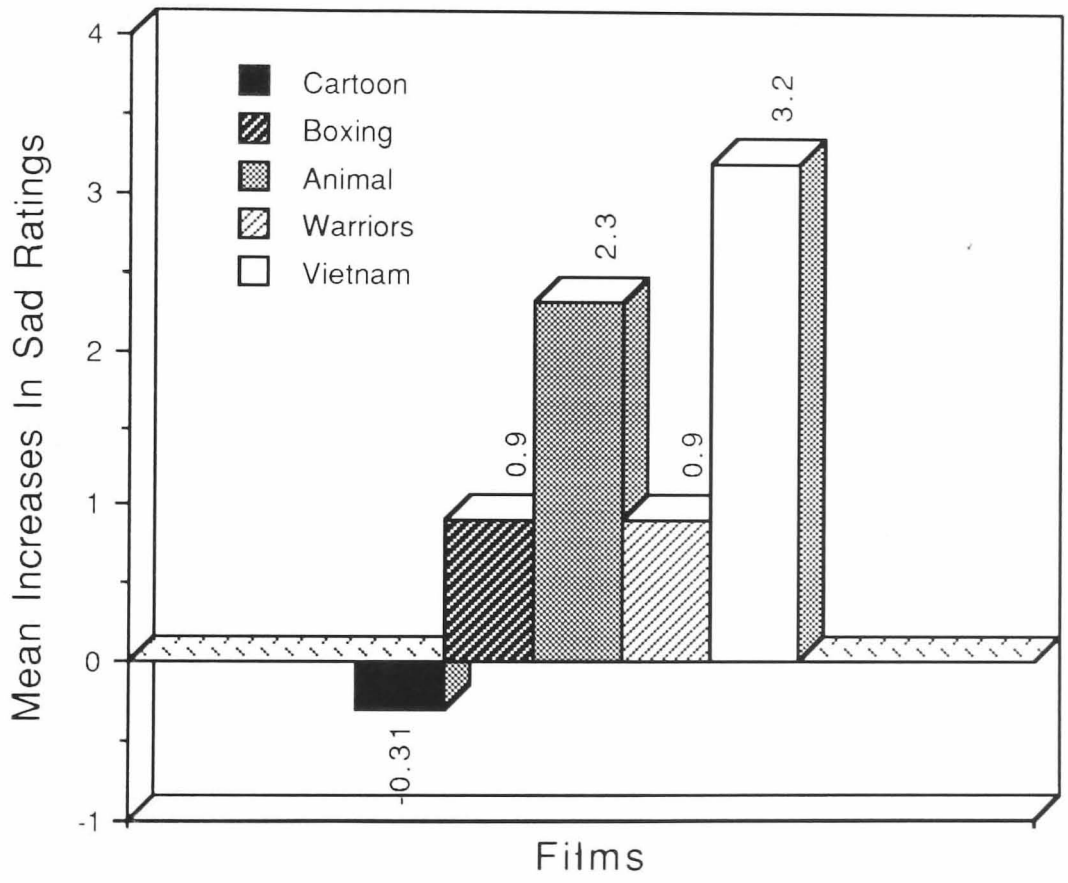


Figure 5.3: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Sad They Perceived Themselves To Be Over The 5 Experimental Films.

It can be seen from Figure 5.3 that athe five experimental films produced different ratings of sadness. Subsequent analysis of Variance revealed a main effect of film on Sadness ratings ($F(4,36)=23.748$ $P=0.000$). It is clearly evident that the Vietnam War film once again produced the greatest rating of perceived sadness and that the Cartoon condition decreased reported

Sadness. The Animal film produced the second largest increase in Sadness ratings, with ratings to the Warriors and Boxing Films following respectively. Post hoc testing using Newman-Keuls revealed that only the differences between the Warriors and Boxing films and between the Vietnam and Animal films proved not to be significant.

Sorry

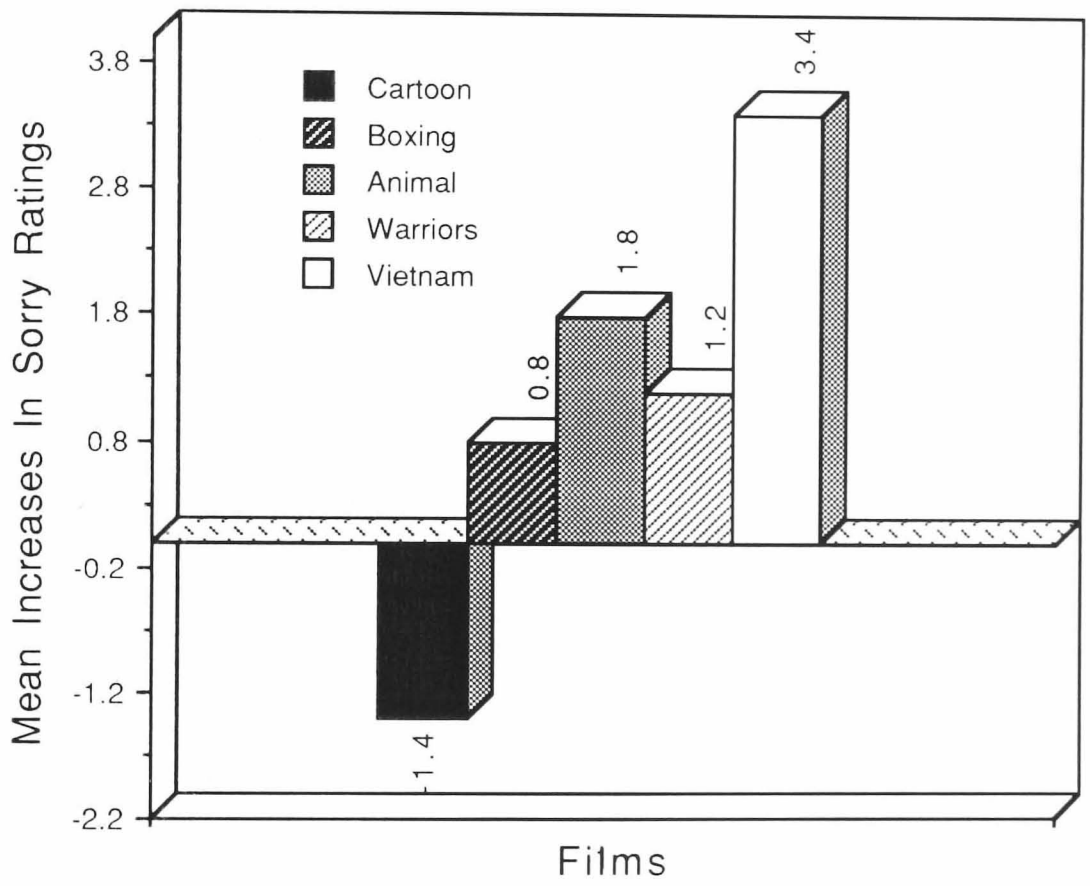


Figure 5.4: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Sorry They Perceived Themselves To Be Over The 5 Experimental Films.

Initial analysis involving subjects' sorry ratings, as depicted in Figure 5.4, revealed differences between the five experimental films. Subsequent analysis of variance revealed a main effect of film type on subjects' sorry ratings ($F(4,36)=19.729$ $P=0.000$). Again the Vietnam War film induced the greatest Sorry score while the Cartoon, as with sadness ratings, decreased subjects sorry ratings compared with their baseline scores. Subsequent analysis revealed that the Vietnam film Sorry ratings were

significantly greater than any of the other four films and that the Cartoon mean rating was significantly lower than for any of the other films. There were no other significant differences .

Clutched Up

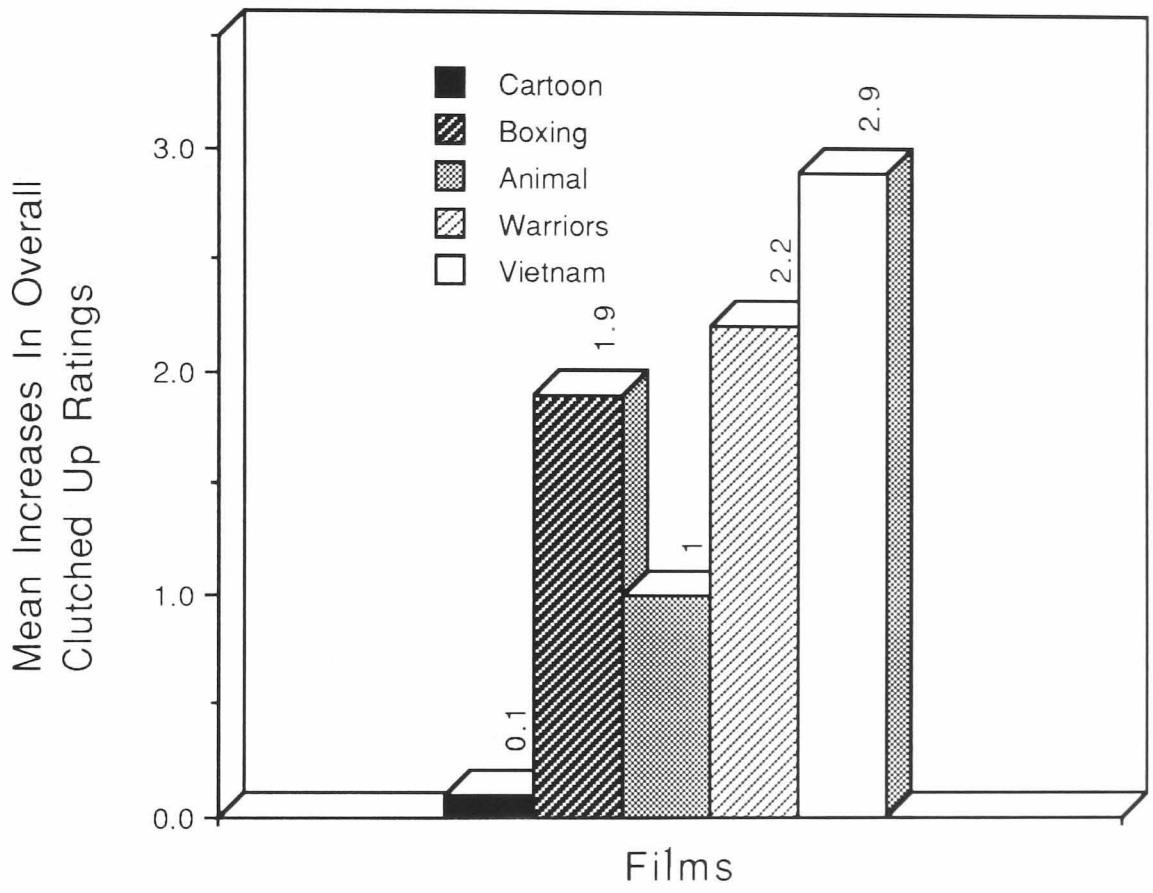


Figure 5.5: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Clutched Up They Perceived Themselves To Be Over The 5 Experimental Films.

Preliminary analysis revealed once again a main effect of film on ratings for this mood ($F(4,36)=20.579$ $P=0.000$). Subsequent analysis revealed that the Vietnam War film rating was significantly higher than all the films except for the ratings for the Warriors film. All films except that for the Animal film were significantly different from the Cartoon. There were no other significant differences.

Positive Mood Analysis

Overall Positive Mood Ratings

As with the overall negative mood ratings, analysis was also performed to investigate subjects' overall positive mood ratings induced by the five film conditions. Thus the four positive moods were pooled together to obtain an overall positive mood score. These mean overall scores are depicted in Figure 5.6 below.

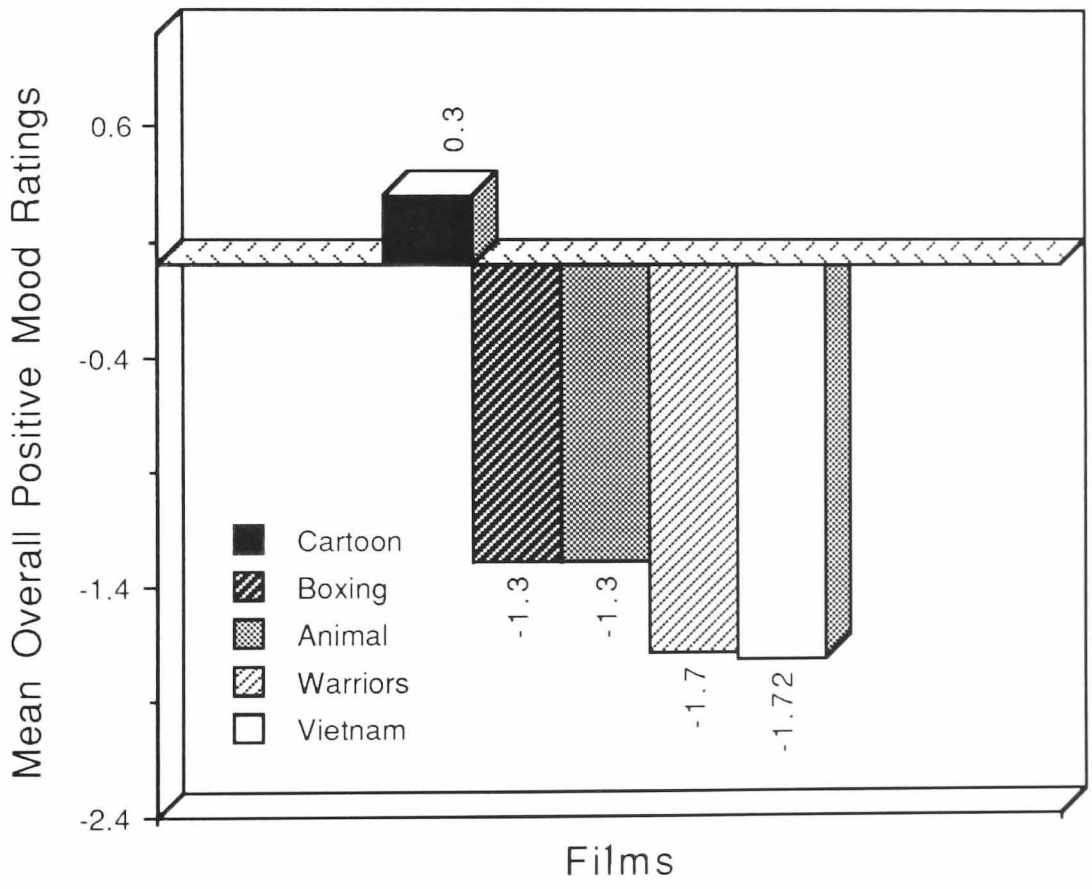


Figure 5.6: Mean Positive Mood Ratings Of All Participants To All 5 Experimental Films.

Analysis of variance revealed that there was a main effect of film on participants' overall positive mood ratings ($F(4,174)=22.898$ $P=0.001$). Post hoc analysis (Newman-Keuls) revealed that the Cartoon yielded significantly higher ratings in overall positive mood ratings than any of the other four films. The only other significant differences were between the ratings for the Animal and Vietnam War film and the Boxing and Vietnam War film.

Individual Positive Mood Analysis

Pleased

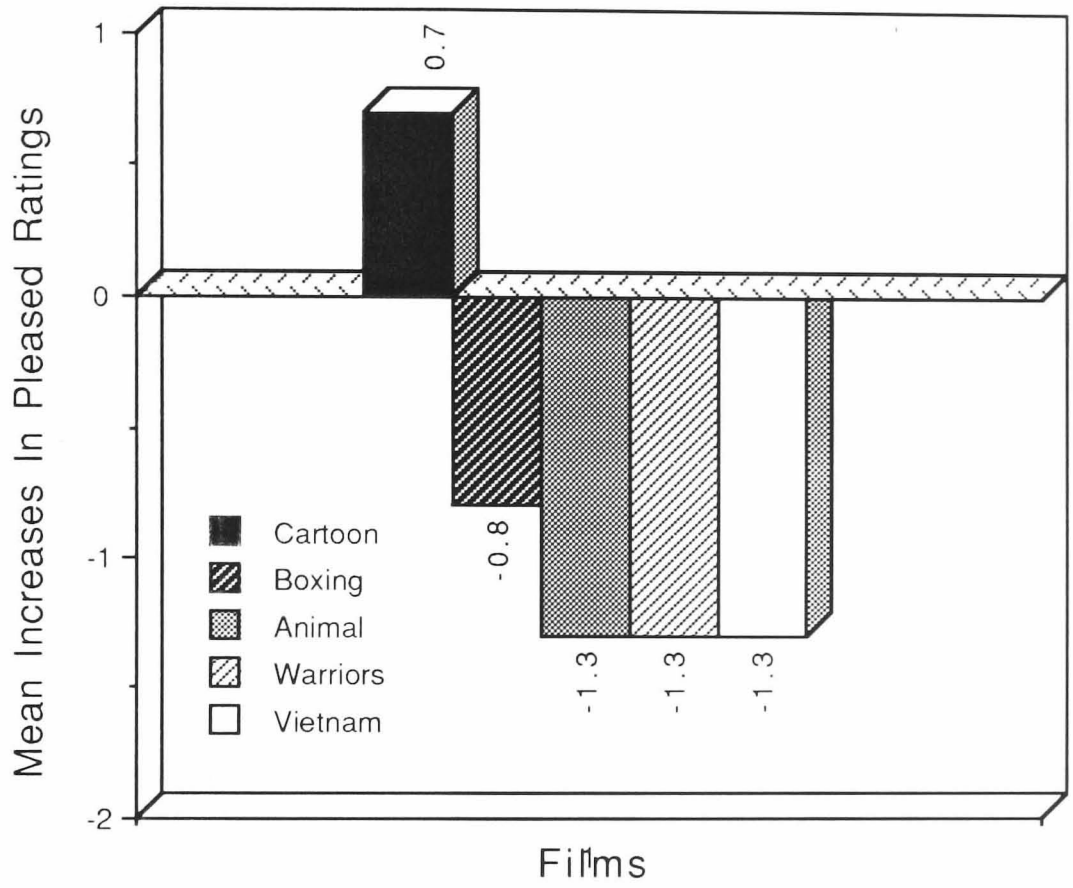


Figure 5.7: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Pleased They Perceived Themselves To Be Over The 5 Experimental Films.

Initial analysis revealed a main effect of film on participants' pleased mood ratings ($F(4,36)= 11.464$ $P= 0.000$). Post hoc tests revealed that the Cartoon ratings were significantly different from those produced by the other four films. Indeed it can be seen that the Cartoon actually increases participants' pleased ratings from baseline measures.

Kindly

From Figure 5.8 it can be seen that the Warriors film once again accounted for the largest mean changes in the subjects' mood ratings. All films decreased subjects' perceptions of how Kindly they felt and analysis of variance revealed a main effect of film on mood ratings (F(4,36)=5.869 P=0.000).

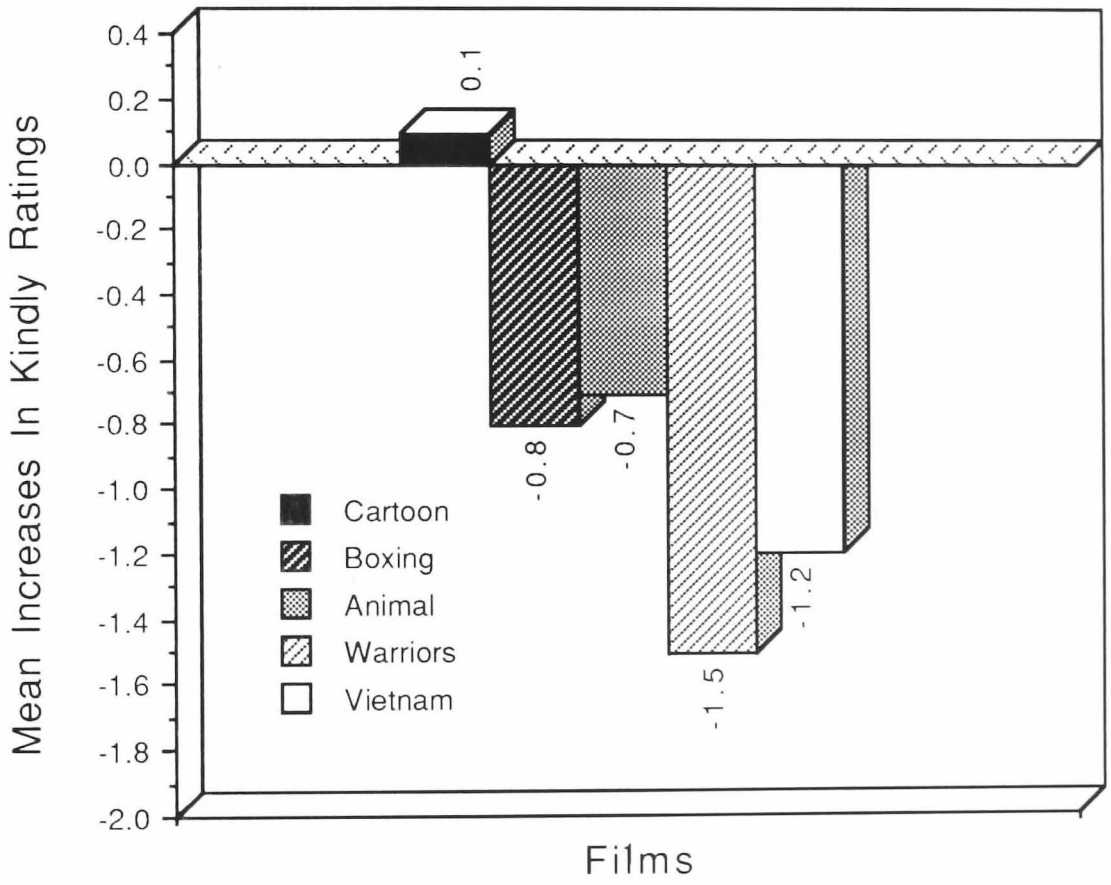


Figure 5.8: Mean Rating Changes From Baseline Scores Of All Subjects' Ratings Of How Kindly They Perceived Themselves To Be Over The 5 Experimental Films.

Post hoc testing revealed that the only significant difference in mean Kindly rating changes were between the Vietnam War film and the Cartoon. As can be seen in Figure 5.8 the Cartoon produced an increase from baseline in Kindly ratings.

Warmhearted

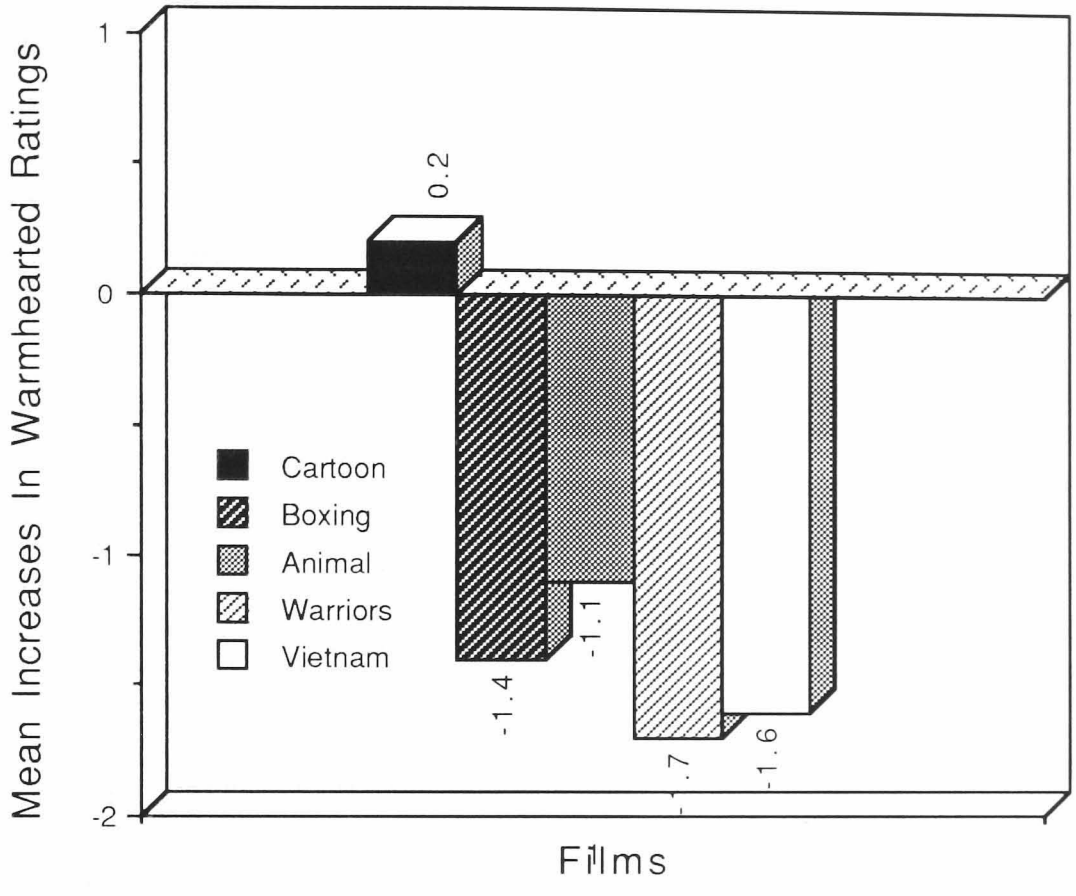


Figure 5.9: Mean Rating Changes From Baseline Scores Of All Subjects Ratings Of How Warmhearted They Perceived Themselves To Be Over The 5 Experimental Film.

Preliminary analysis of participants' warmhearted ratings revealed a main effect of film ($F(4,36)=9.841$ $P=0.000$). As can be seen in Figure 5.9 the Cartoon once again accounted for an increase in participants mood ratings.

Carefree

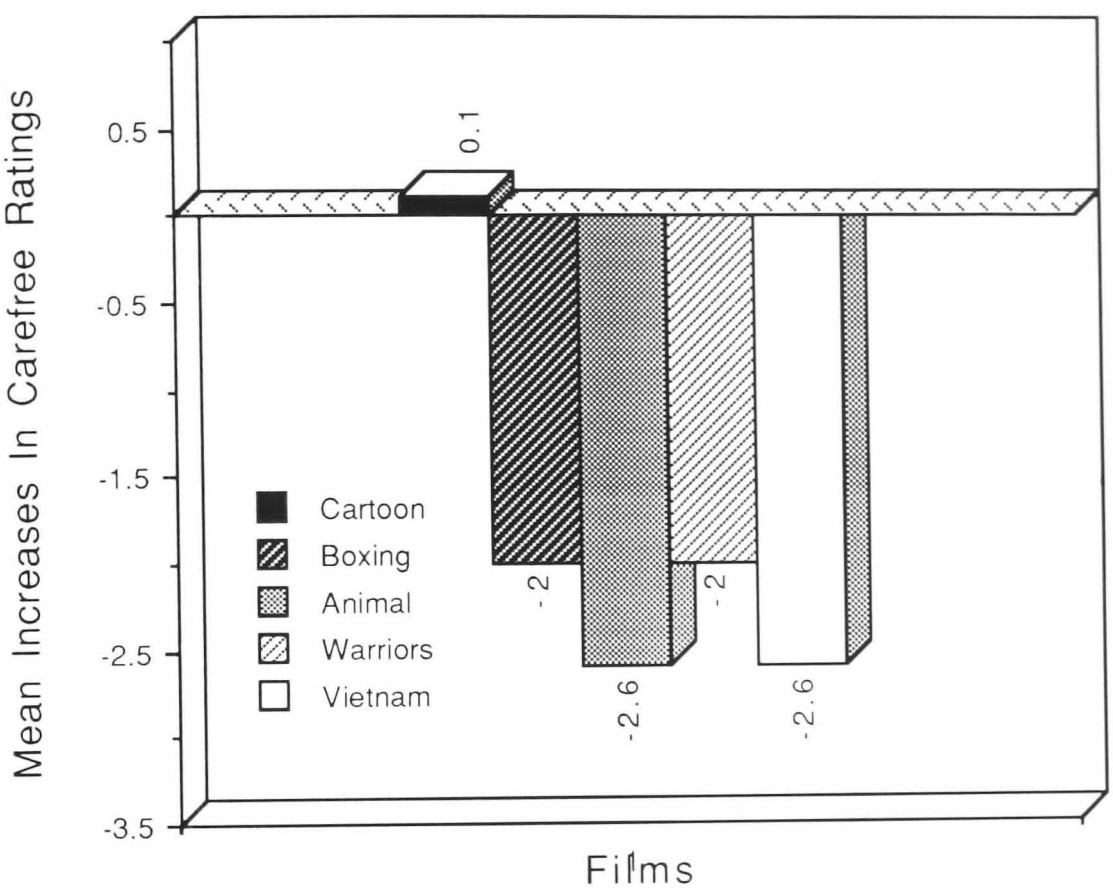


Figure 5.10: Mean Rating Changes From Baseline Scores Of All Subjects' Ratings Of How Carefree They Perceived Themselves To Be Over The 5 Experimental Film.

Initial analysis revealed a main effect of film on participants' carefree ratings ($F(4,36) = 16.354$ $P=0.000$). From Figure 5.10 it is evident that the Cartoon once again produced an increase in this mood rating. Post hoc tests revealed that the mean ratings for the Cartoon for this mood were significantly different than the means for the other four films. There were no other significant differences between films.

Discussion

The most interesting results are those involving comparison of subjects' overall positive and negative mood changes to the five different film conditions (see Figures 5.1 & 5.6). Except for the Cartoon, participants generally have greater increases in negative moods than decreases in positive moods. This may be due to the fact that violence and aggression are commonly associated with negative emotions. Presented with such stimuli the subjects' interpretation system concludes that negative assessments are of primary importance and positive evaluation is given only secondary attention. Thus when viewing these violent conditions the subject is more susceptible and more attentive to his/her negative feelings.

These results seem to support the concept of 'priming' in relation to media violence. As suggested by Berkowitz (1993), viewers of media violence can get aggressive ideas from exposure to violent films or television. It was also suggested that the violence can conjure/prime other semantically related thoughts or emotions. Previous studies have provided results which support this 'association effect' (Berkowitz, Corwin & Hieronimus, 1963; Berkowitz & Geen, 1967; Donnerstein & Berkowitz ,1983; Boyanowsky et al , 1974 ; Josephson, 1982).

The fact that violence is usually perceived as being a negative quality would according to these theories give rise to other negative thoughts or moods. Thus while the viewer may well experience increases in anger, other related negative emotions may also be triggered and experienced. Thus, as with the results from this study, while ratings of angry have been increased, there have also been increases in other negative moods such as Sad, Sorry and Clutched Up. In contrast the Cartoon was created tp produce light-hearted pleasure and humour in its viewers. Thus it is associated with positive thoughts and emotions. Thus via association other positive moods should be primed by it. The Cartoon was the only film that increased all four positive mood

ratings. The Cartoon also, consistently yielded the smallest increases in participants' negative mood ratings.

As predicted, the Vietnam War Film produced by far the greatest increase in subjects' overall negative mood, twice as much as the Warriors film, (which accounted for the second largest increase see Figure 5.1). The Warriors, Boxing and Animal films produced similar increases in subjects' negative moods, while, as expected, the Cartoon was seen to have the least effect on negative mood scores. With regards to subjects overall positive mood ratings, the Warriors film produced marginally more decreases than did the Vietnam film (see Figure 5.6). Also the Boxing film was seen to decrease subjects' overall positive moods more than the Animal film.

The fact that the Vietnam War film caused the highest ratings in subjects overall negative moods and smallest ratings in overall positive moods supports the existing literature on media violence. The film depicts real footage of violent fighting and it has been shown that the more realistic the media violence the more influence it has on affecting subsequent viewer behaviour (Garry, 1967; Chaney, 1970; Feshbach , 1972 ; Meyer, 1970; Berkowitz & Alioto, 1973; Geen & Rakosky, 1973; Geen, 1975).

These results suggest that differing portrayals of media violence can evoke different emotional experiences. Though there were three real films within the experiment (the Animal, Boxing and Vietnam film) the fact that the latter film produced greater increases in all four negative mood ratings indicates the importance of cognitive interpretation. In this experiment the interpreter was faced with 5 situations of violence. It applies different assessments and values to each and as a result produces five different responses. It seems that the appraisal system is usually rapid and unconscious (Arnold, 1970; Mandler, 1975). The fact that it can even distinguish the contents and the context of the situation (by the fact that the three realistic films produce different responses) suggests it is a very sensitive and versatile system. Mood rating responses to the Cartoon are also indicative

of this. While the viewer reported an increase in anger after viewing the Cartoon, subsequent increases in positive mood ratings also resulted. It is interesting that something which was made with humour to entertain its audience also has the ability to increase anger levels in that same audience. Such results suggest that Cartoons cause significantly increases in viewers' negative mood experiences.

The fact that there were no significant results evident in mood ratings between imagery groups is interesting. In the first study, there were significant differences in physiological responses between imagery groups. Considered together both sets of results suggest that imagery ability might play a more influential role in physiology rather than in mood.

Overall these results provide strong evidence that there is a link between television violence and viewers' subsequent mood. Different types of situational violence have been seen to evoke differing moods. These results support the view espoused by Gunter (1980) that people are not passive recipients of what they see on television, but that they actively interpret what they watch. It appears that 'mood' may have has an important part to play in the perception of and subsequent reaction to media violence. These results also provide support for the proposal that emotion is usually a post cognitive phenomenon (Reisenzein, 1983).

Chapter 6

Study 3

Introduction

It has been suggested that the *perception of realism* of violent scenes plays an important mediating role in subsequent viewer reactions to screen violence. My research and that of others suggests that it is those scenes perceived by the viewer as having actually happened, as opposed to events they perceive as being fictitious, that subsequently evoke the greatest emotional response. This occurs in both children (Garry, 1967 and Chaney, 1970) and in adults (Berkowitz & Alioto, 1973; Feshbach, 1972 & Meyer, 1970). This effect is also observed in research involving viewers' physiological arousal to screen violence. Screen violence which is perceived as realistic elicits a greater effect upon the viewer's physiological reactivity (Geen, 1975; Geen & Rakosky, 1973).

Such research suggests that violence which is perceived as real is a more arousing cognitive stimulant. The attention-grabbing characteristics of real screen violence appear to elicit aggressive emotions, thoughts and experiences which result in disinhibition of aggressive responses. Berkowitz (1984) proposed: "the aggressive ideas suggested by a violent movie can prime other semantically related thoughts, heightening the chances that viewers will have other aggressive ideas in this period".

The viewers' imagery ability could also be a mediating factor in reactions to real/fictitious screen violence. It has been reported that some individuals include imaginary events as part of their perceptual experience (Johnson & Raye, 1981; Finke, Johnson & Shyi, 1988). Of further relevance is the reported observation that individuals with high imagery ability are more likely to incorporate imaginary into their memories than individuals with lesser imaginal abilities (Johnson et al, 1979). Thus individuals with high imagery ability could be more at risk to potential negative effects from viewing fictitious events of violence. They are more capable of transposing possess the skills to be able to relate more readily with make-believe situations and are capable of transposing them into events with the potential of realistic

existence. In contrast the low imager does not have such a capacity to translate imagers into real-world existence and therefore might not be as easily affected by them. Instead, the low imager could be more susceptible to real violence. Faced with stark and vivid images of realistic violence they may be unable to cope with the sudden upsurge in accompanying emotions and arousal. Such sudden increases, as Zillman (1971) has stated, could be misattributed to some kind of unexplainable provocation, resulting in the perception of arousal as aggression or some other emotion in need of expression.

Thus in this third study it was predicted that high and low imagers' physiological responses would be different to real and fictitious scenes of screen violence. More specifically, it was predicted that the low imagers' heart rates would be expected, both from the above arguments and from the results of study 1, to be more elevated to the real films than for the high imagers under the same conditions. It was expected that, considering the results of the first study, EDA changes would be less sensitive than heart rate changes.

The study will also investigate claims made by Frost & Stauffer (1987) that not only do relatively novel aggressive acts cause the greatest arousal, but that the types of violence that cause the greatest physiological change are those recalled sooner in the post-experimental time period. Adapting this observation towards imagery, would participants recall scenes that they had previously rated as being more vivid, sooner than those scenes that they had not ? It is suggested that it is those scenes which have been both perceived as most vivid as well as causing the greatest physiological reaction that will be those recalled sooner.

Method

Participants

68 participants were initially screened for the experiment by completing the VVIQ (see Appendix A). From these a total of 36 participants participated, 18 of whom were high imagers and 18 of whom were low imagers. Of these there were 18 males and 18 females, 9 in each imagery group. Participants were drawn from the full-time and part-time student undergraduate population and ranged in age from 19 to 40 years (M=24).

Videotapes

Six tapes approximately 4 minutes in length were selected from a number of tapes from the experimenter's collection. The tapes were Panasonic NV E180XP3 and were played on a Panasonic Hifi Stereo video cassette recorder. Three of the films were taken from footage of real-life events and three were fictitious events.

The three real violence films were:

1. Real War - an unarmed Vietnamese civilian is shot by a South Vietnamese soldier.

2. Real Riot - the 1992 Los Angeles race riots, in which people are dragged from their cars and beaten by rioters.

3. Real Football - a clash between rival football supporters in which both sides are seen taunting each other before clashing in scuffles.

Fictitious events:

4. Fictitious Murder - an unarmed man is stabbed by a hooded attacker when leaving a lift and is killed by the assailant. The actor Michael Douglas is seen in the clip and hence reinforces the fictitiousness.

5. Fictitious Assault - members of the Klu Klux Clan assault a group of black people as they vacate a church.

6. Fictitious Riot - prisoners taunt and clash with prison officers.

Rating Scales

During the experiment participants were asked to complete a set of graphic rating scales after viewing each of the six films. Five ratings were obtained: film violence, personal involvement, personal interest, vividness of violence portrayed, and film realism.

Each rating was laid out in such a way that a 80mm line ran between 'Not at all' to ' Very much so '. Participants were asked to dissect the line with a pen line, so that a line nearer the 'Not at all' end of the scale on for example the Film Aggression rating would indicate that the subject did not think the film was aggressive.

See Appendix D for an example of these rating scales.

Physiological Measures

All physiological activity was measured continuously throughout the experiment using an 8-channel Grass Model 7D Polygraph. Electrodes to measure continuous heart rate and electrodermal activity (EDA) were attached each participant. Heart rate electrodes were attached to each participant's ankles and wrists via crocodile clips and were connected to the Polygraph. EDA was recorded using AAg-AgCl electrodes attached to the thenar and hypothenar of the subject's non-dominant hand. An output lead was taken from the video recorder and attached to an input lead to the Polygraph. This lead marked the occurrences of sound from the video to the polygraph and thus it could be precisely seen where each of the films both started and finished.

Procedure

Participants were divided into two imagery groups: High or Low imagery ability according to their scores on the VVIQ. There were a total of 18 participants in each imagery group, of whom 9 were males and 9 females.

Participants were randomly assigned to one of the film order presentations of a 6 by 6 Latin Square design. Each participant was seated alone in a sound-proofed laboratory about four feet away from a television monitor. Participants were given the following instructions regarding their task and the nature of the experiment.

This experiment involves the assessment of moods and physiological responses following the presentation of film clips depicting violent scenes. Electrodes to measure your heart rate and skin conductance will be attached to your wrists and ankles and you will be seated in a sound proofed room. Once you have rested, and have completed the first mood questionnaire, you will be required to assess a number of film clips which will be presented to you on a television monitor.

You will be asked to watch each clip closely. After each clip you will be asked to complete a short questionnaire.

I have read the above instructions and have understood them fully. I give my consent to participate in this experiment, on the understanding that I may withdraw at any time should I wish to.

Signed: *Date:*

Upon receiving written consent , electrodes to measure heart rate and electrodermal activity were attached as specified above. Participants were then given the first of their 7 Nowlis Mood Adjective Checklists (NMAC) to complete (see Appendix C). Having completed this participants were informed that a recap of their

experimental instructions would accompany each of the rating scales. Participants were given a clip board with the questionnaires arranged in order and a pen. Participants were asked to refrain from movement while the film clips were playing. Lights in the room were dimmed giving enough light for the completion of questionnaires. The room was maintained at normal room temperature.

Following a 5-minute initial resting period each subject watched the presentation of the 6 film clips.

Each video contained in sequence:
1) A recap of the experimental instructions.
2) A 4-minute presentation of the first film clip.
3) A 2-minute period to complete the rating scales and the NMAC.
4) A 5-minute resting period.

Stages 2,3, and 4 were repeated for the other 5 film clips. During the resting periods a blank screen with no sound was presented to the participants.

After the sixth clip had ended and participants had answered both the rating scales and NMAC to it they were given five-minute resting period. After this time the participants were asked to attempt to remember and give brief description of as many of the six film clips as possible.

At the end of the experimental session the electrodes were removed. Participants were thanked and invited to ask questions concerning the experiment.

Four positive moods (carefree, warm-hearted, kindly and pleased) and four negative moods (sad, angry, clutched up and sorry) were used to analyze subject mood changes to the differing film clips.

Results

Data Reduction.

R-waves were counted over successive 30-second periods to provide a measure of heart rate. Subsequent values were multiplied by 2 to provide a score in beats per minute. This method was also applied for electrodermal responses. Skin conductance responses were defined as amplitudes of at least 0.05uS. For statistical analysis alpha was set at 0.05. (M)Anova and Anova statistical tests were performed on the data. Newman Keuls tests were utilized for post hoc testing.

Physiological Responses

Heart Rate Responses

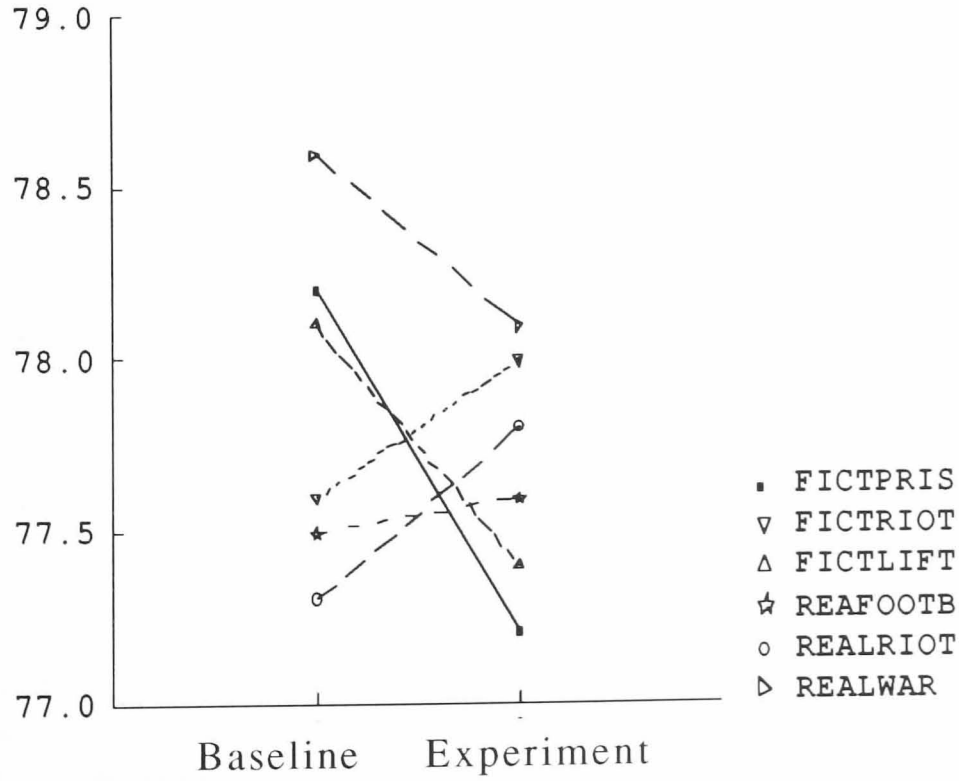
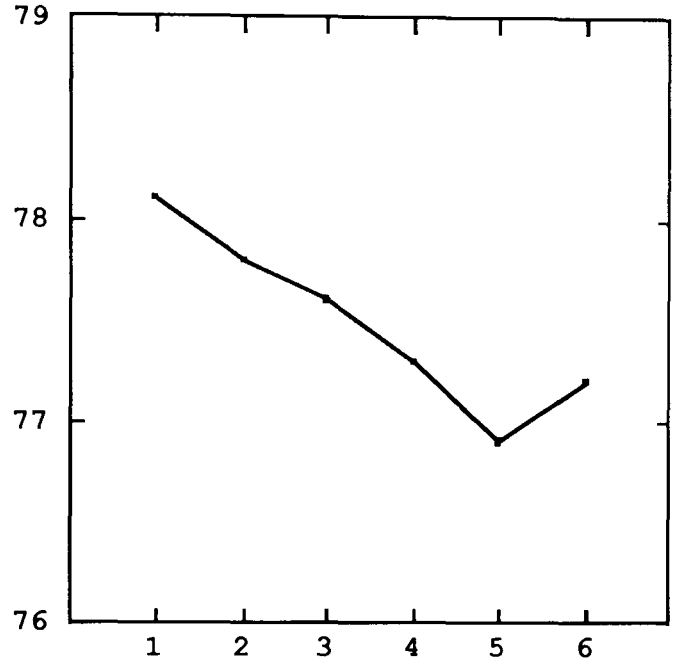


Figure 6.1. Mean Heart Rate Differences For All Participants Between Baseline and Experimental Periods.

As can be seen from Figure 6.1 the mean heart rates of all participants to the six different films varies somewhat. Though heart rates seemed to decline from baseline scores during the fictitious films no significant effects were evident between

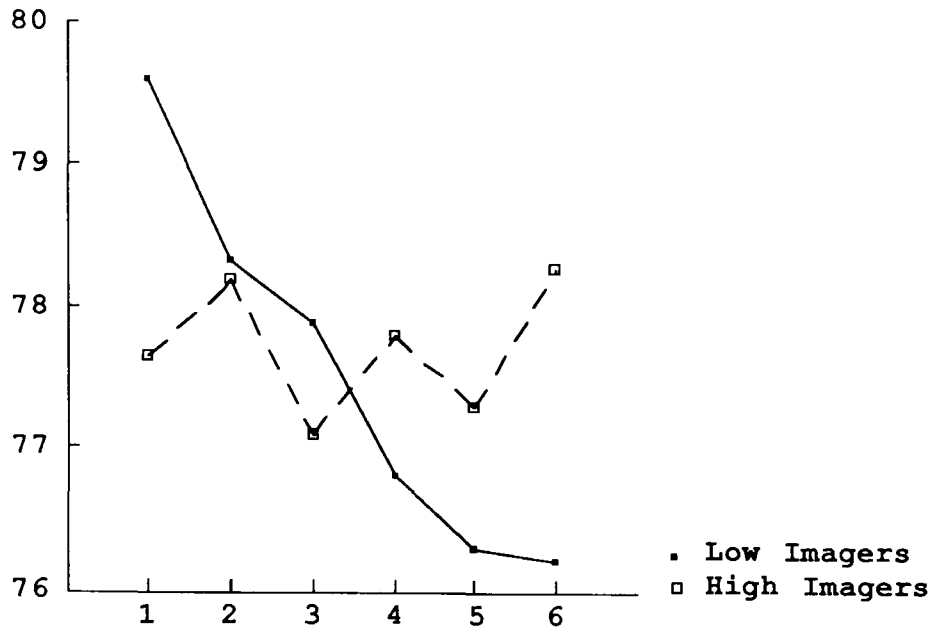
baseline or experimental heart rates. There was no interaction between film reality, films, baseline/experimental heart rates or sex ($F(2,31)=1.662$ $P=0.206$) nor between film reality, films, baseline/experimental heart rates or imagery group ($F(2,31)=0.078$ $P=0.925$). There was also no effect of film on heart rate differences.



Key: 1=Real War 2=Real Riot 3=Real Football
4=Fictitious Murder 5=Fictitious Riot 6=Fictitious Prison

Figure 6.2. Mean Heart Rates For All Participants Over The Six Films.

Differences in participants' heart rates across the six films are reflected in Figure 6.2 and as can be seen there does not seem to be any great differences between them. Indeed subsequent analysis confirmed that there was no significant differences between participants' heart rate across the six films ($F(6,30)= 0.077$ $P=0.998$).



Key: 1=Real War 2=Real Riot 3=Real Football
4=Fictitious Murder 5=Fictitious Riot 6=Fictitious Prison

Figure 6.3. Mean Heart Rates For the Two Imagery Groups Over the Six Films.

As can be seen in Figure 6.3 mean heart rates match the predicted pattern in that low imagers' heart rates were more elevated to the Real Films than heart rates for high imagers, while heart rates for high imagers were highest to the Fictitious Films (See also Figure 6.4 which reflects this more clearly). Analysis of variance revealed that there was a significant difference between the two imagery groups' heart rate scores across the real-fictitious dimension ($F(1,34)=5.34$ $P=0.027$).

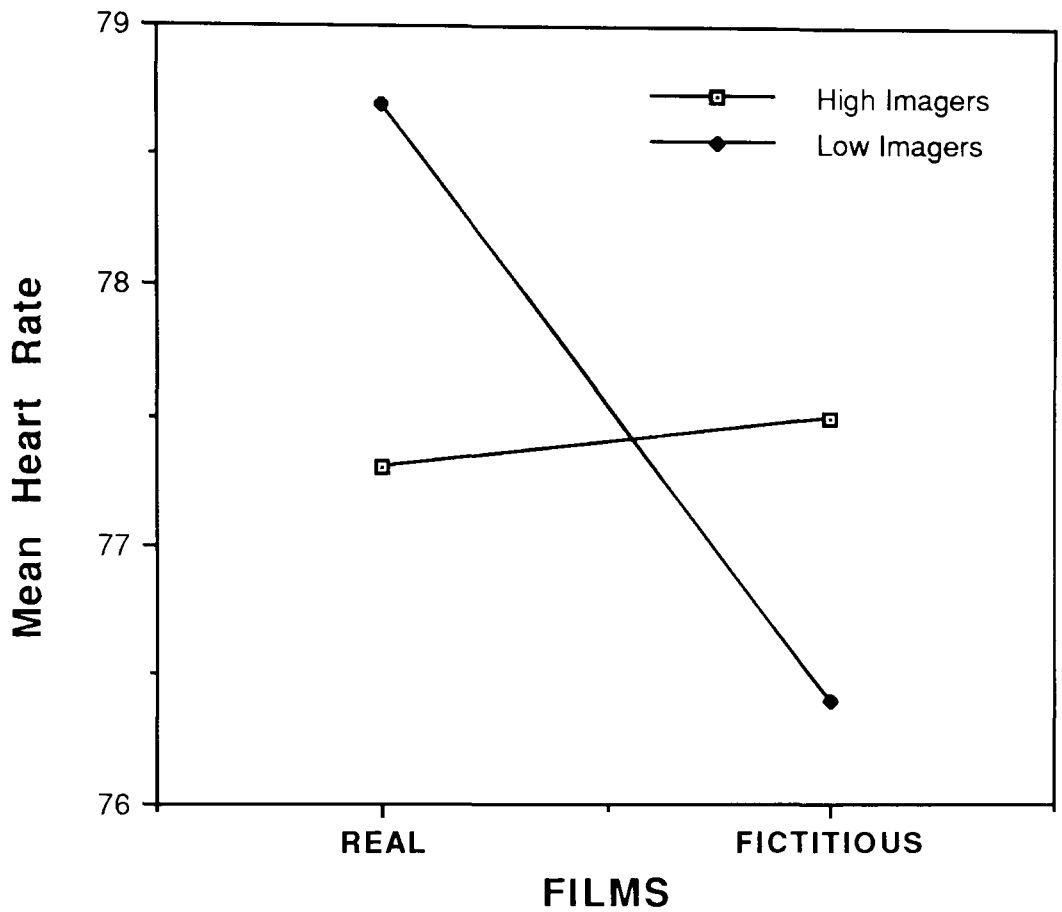


Figure 6.4. Mean Heart Rates Of Imagery Groups Between Real And Fictitious Films

Subsequent analysis revealed that there were significant differences in mean heart rates between Real and Fictitious films for low imagers ($F(1,34)= 9.69$ $P=0.004$). From Figure 6.4 it can be seen that low imagers mean heart rates are more elevated to Real films than Fictitious films. From Figure 6.4 it can be seen that there is very little difference in high imagers mean heart rates between Real and Fictitious films and this difference was non significant ($F(1,43)=0.02$ $P=.877$).

Analysis of mean heart rate increases revealed that there was no initial overall difference between high and low imagers (F(1,34)=1.88 P=.179).

Subsequent analysis revealed that there was a significant two-way interaction between film realism and imagery group (F(1,34)=57.1 P=0.0001). The differences (reflected in Figure 6.5) in high imagers' mean heart rate increases from baseline between real and fictitious films proved not to be significant (F(1,34)=3.24 P=0.081).

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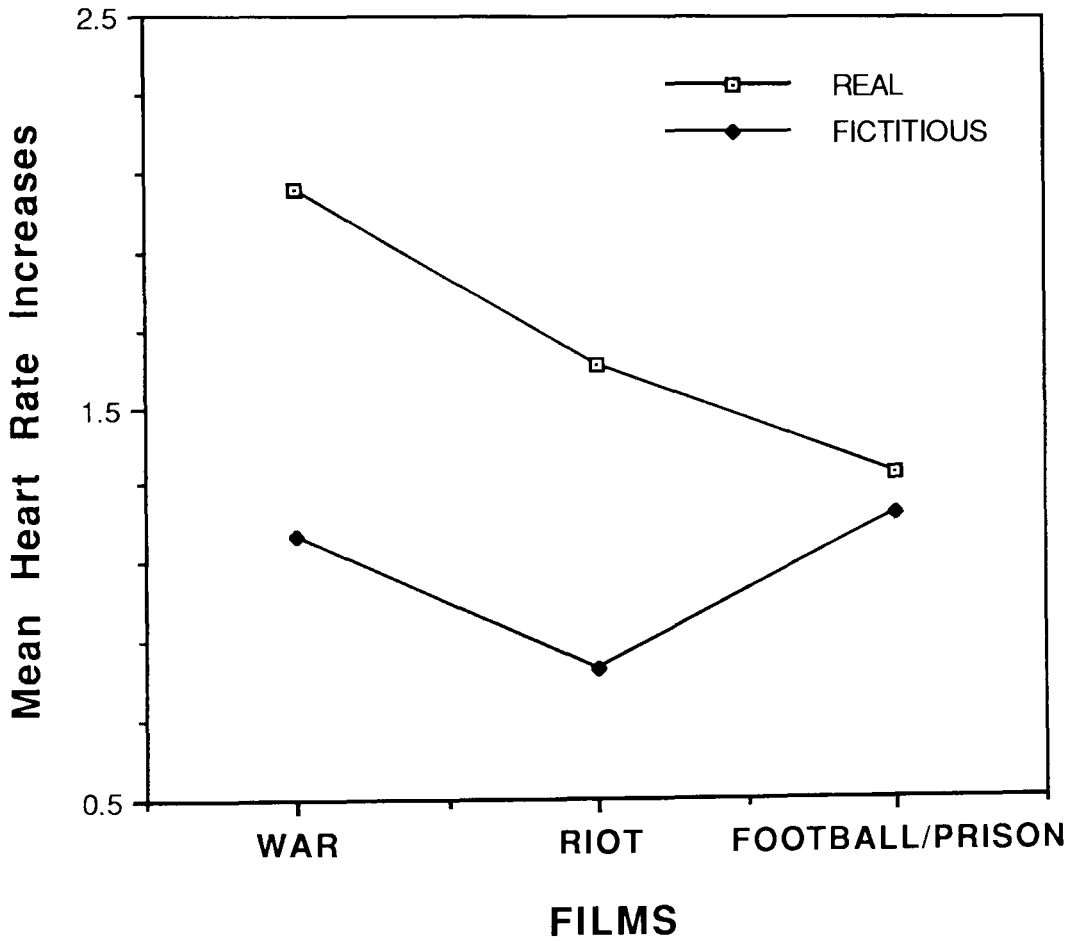


Figure 6.5. Heart Rate Responses Of High Imagers To Real and Fictitious Depictions Of Film Violence

The differences in low imagers' mean heart rate increases from baseline however (see Figure 6.6), were significantly greater for the Real films than for Fictitious films ($F(1,34)=155.9$ $P=0.001$).

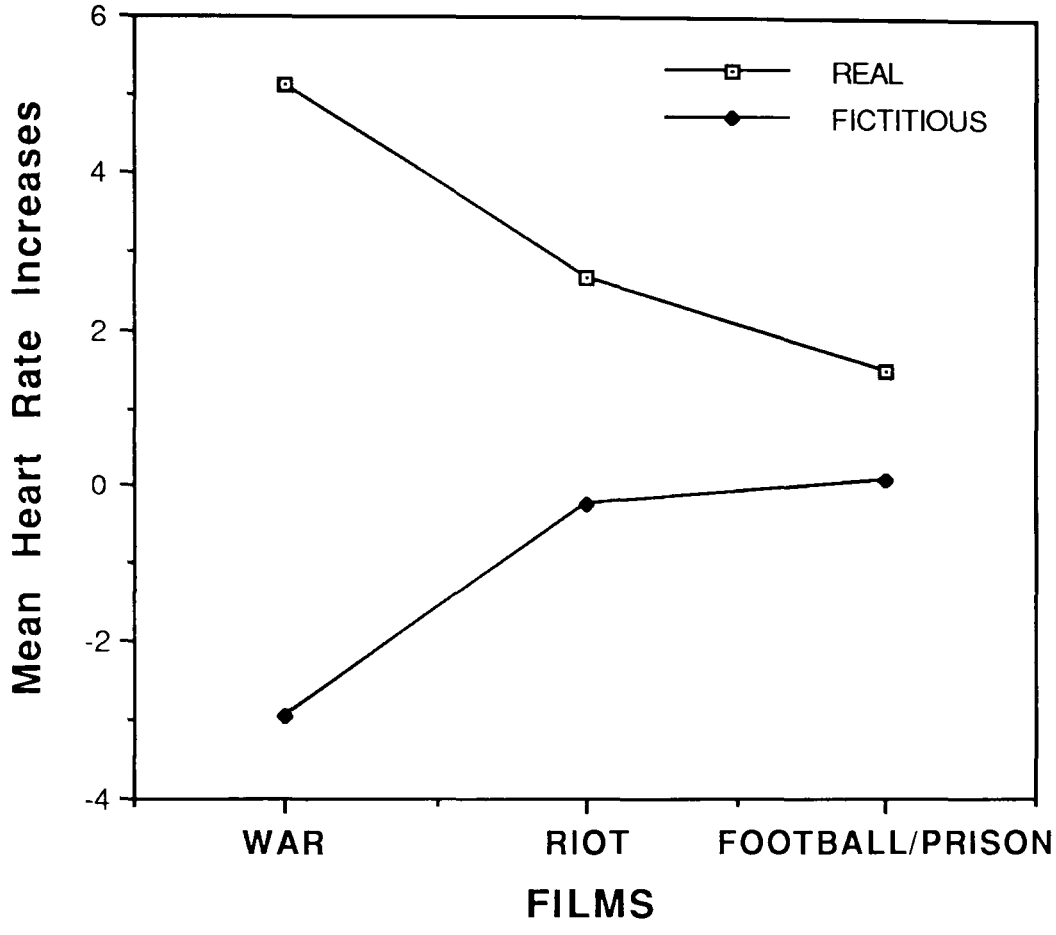
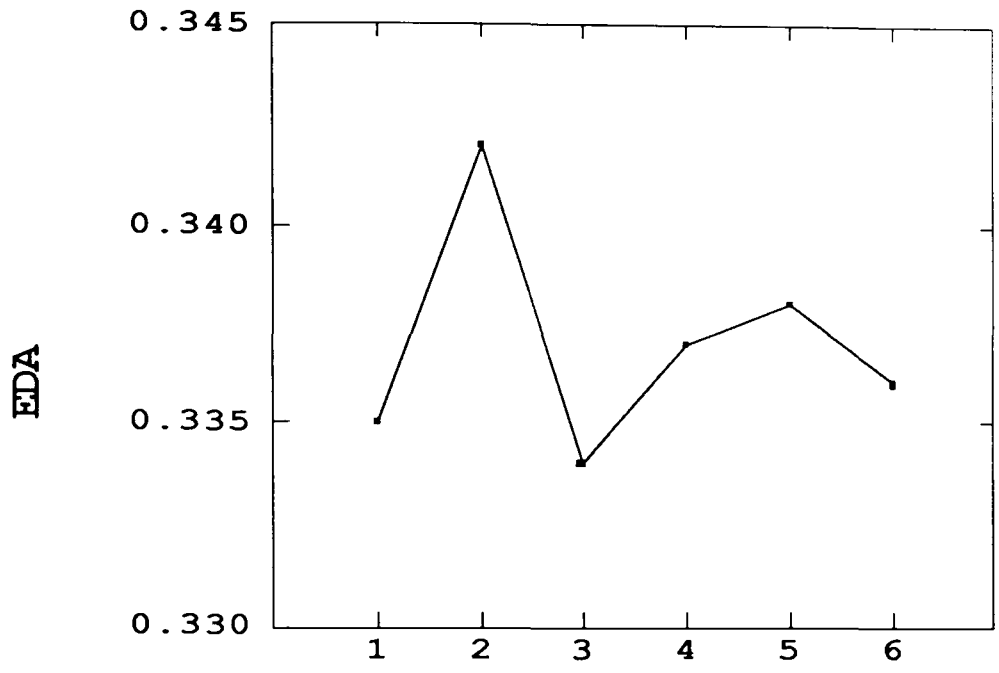


Figure 6.6. Heart Rate Responses Of Low Imagers To Real and Fictitious Depictions Of Film Violence

There was also a three-way interaction between imagery group, film and film realism ($F(2,68)=14.10$ $P=0.001$). Further analysis revealed that a two-way interaction was more evident for the low imagers ($F(2,68)=33.98$ $P=0.0001$) and less so for the high imagers ($F(2,68)=.49$ $p=.614$). The tw-way interaction within the low imagery group is reflected in Figure 6.6. It can be seen that heart rates have increased as the level of real film violence increases but decreases as the level of fictitious violence increases.

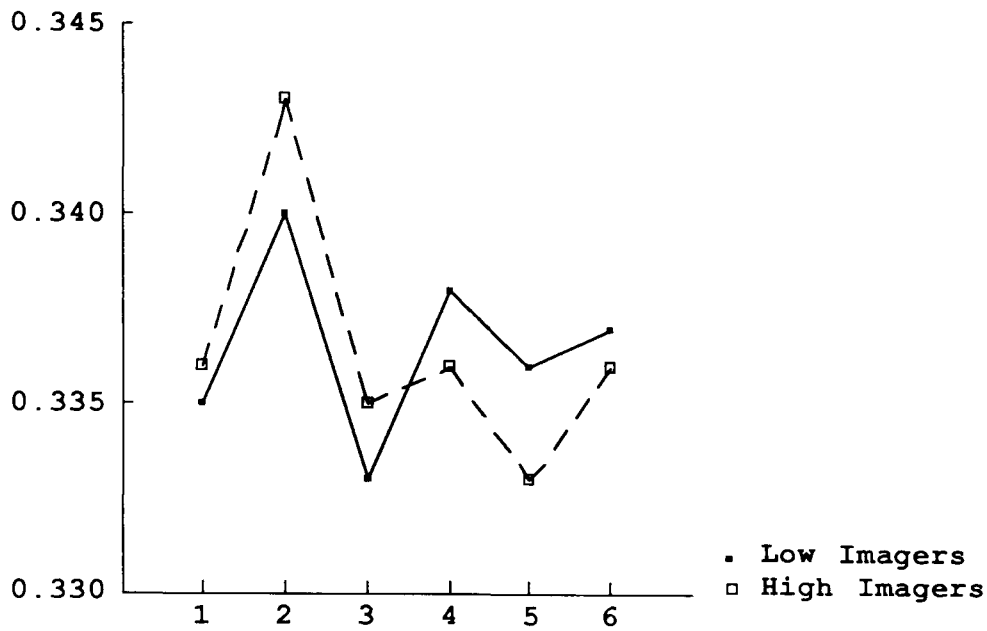
Electrodermal Activity (EDA) Responses



Key: 1=Real War 2=Real Riot 3=Real Football
4=Fictitious Murder 5=Fictitious Riot 6=Fictitious Prison

Figure 6.7. Log Skin Conductance Changes To The Six Films By All Participants

As can be seen from Figure 6.7, participants' skin resistance was somewhat variable over the six films. It is evident that the Real Football and Real War films produced the highest levels of EDA (the lower the figure the greater the skin resistence). However differences between the six films were seen to be non-significant ($F(6,30)=0.754$ $P=0.607$). Results investigating participants' EDA changes across the real-fictitious dimension seem to only partially support the experimental predictions and the results from the heart rate data above. Analysis of variance revealed that there was no significant difference in EDA across the real-fictitious factor ($F(1,35)=0.001$ $P=0.973$).



Key: 1=Real War 2=Real Riot 3=Real Football
4=Fictitious Murder 5=Fictitious Riot 6=Fictitious Prison

Figure 6.8. Log Skin Conductance Changes To The Six Films By Imagery Group.

Analysis of imagery groups' skin reactivity to the six films is depicted in Figure 6.8. The EDA of the two imagery groups across baseline and the six films was generally similar, differences being very small. This was reflected in analysis of variance which revealed that no significant differences existed between these groups ($F(6,30)=0.044$ $P=1.000$).

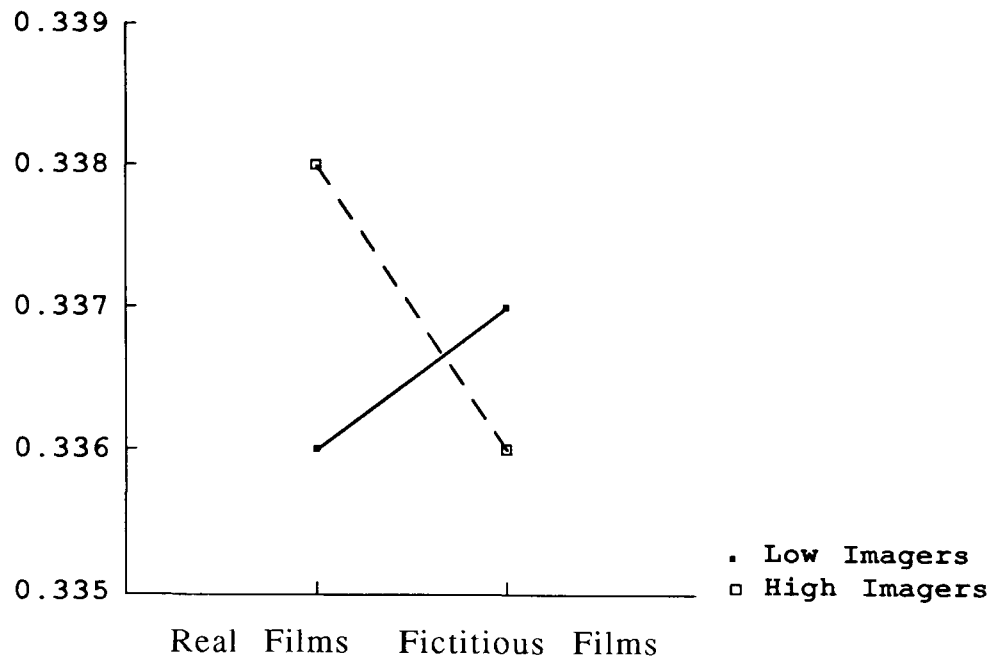


Figure 6.9. Mean Log Skin Conductance Changes To Real-Fictitious Films By Imagery Group.

As can be seen from Figure 6.9, Skin Conductance changes mirrored those for Heart Rate changes and again supported the experimental prediction. Low imagers' Skin Conductance was more reactive to Real films than to the Fictitious films while, in contrast, high imagers showed greater reactivity to the Fictitious films. These results support the predicted differences in physiological reactivity between imagery groups across the real-fictitious dimension. However unlike the heart rate data, there were no significant differences between groups ($F(1,35)=0.031$ $P=0.861$).

As expected there were no significant differences between male and female EDA across either baseline and the six films ($F(6,30)=0.284$ $P=0.944$) or across the real-fictitious dimension ($F(1,35)=0.044$ $P=0.834$).

Analysis of participants' mood ratings

Of the eight mood scales utilized in the experiment, four were negative moods (Angry, Sad, Sorry and Clutched Up) and four were positive (Pleased, Kindly, Elated and Warmhearted). Participants were asked to rate each mood on a 7-point scale(1 signifying 'Not at all' increasing up to 7 signifying ' As strongly as before). In order to determine the effects of each film on participants' mood ratings, all mood ratings taken during the films were deducted from baseline ratings.

Results from multivariate repeated measures analysis of variance ((M)Anova) revealed (using Wilks' Lamda) a main effect of film upon mood ratings overall ($F(2,31)=15.637 P=0.001$) and a main effect of mood ($F(3,30)=8.574$ $P=0.001$). There were interactions between film and overall negative and positive mood ratings ($F(2,31)=17.08$ $P=0.001$) and between mood and overall negative and positive ratings ($F(3,30)=10.368$ $P=0.001$). Overall negative mood increases were larger than positive mood decreases. (M)Anova results also revealed a three-way interaction between films, overall negative and positive mood ratings and individual mood ratings ($F(6,27)= 3.586$ $P=0.010$). Interactions between film reality and films just failed to reach significance ($F(2,31)=3.074$ $P=0.061$) as did the three-way interaction between overall negative/positive ratings with film reality and films ($F(2,31)=3.095$ $P=0.059$). There were no significant interactions between mood ratings, films and imagery group ($F(2,31)=0.067$ $P=0.936$) or between mood ratings, films and sex ($F(6,27)=0.247$ $P=0.956$)

Negative Mood Analysis

Overall Negative Mood Analysis

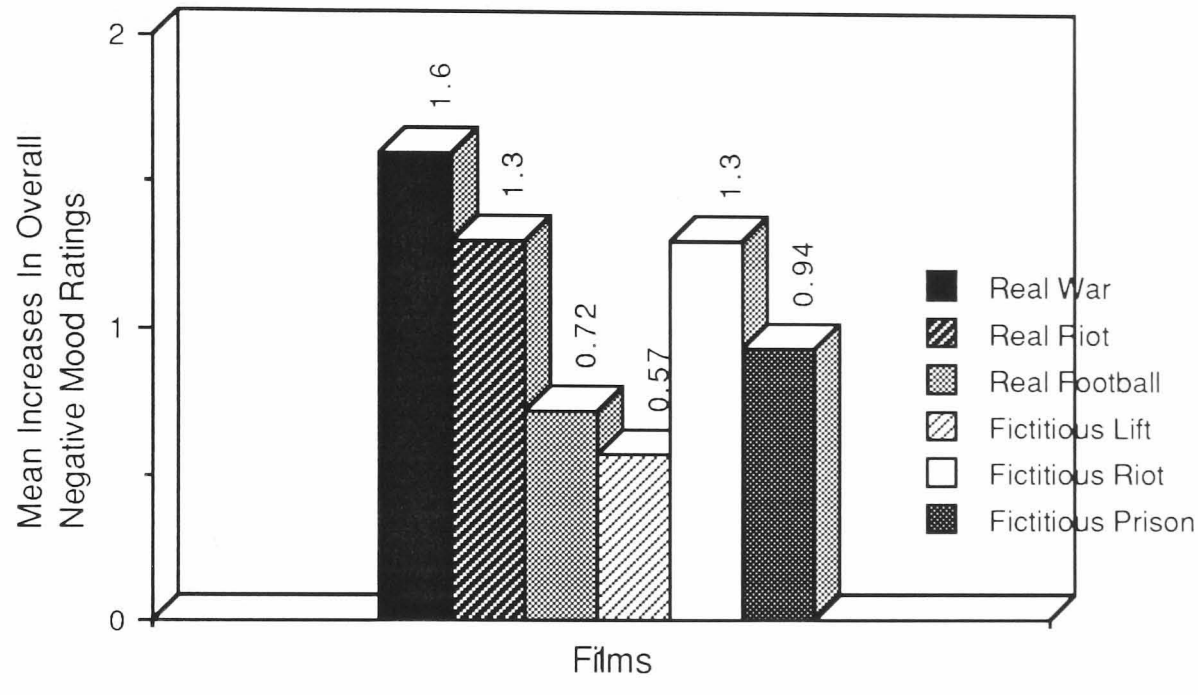


Figure 6.10 Overall Mean Negative Mood Rating Increases From Baseline For All Participants To The Six Films.

As can be seen from Figure 6.10, both the Real War film and the Fictitious Riot film both produced the biggest mean increases from baseline in participants' overall negative mood. The Real Football film and the Fictitious Murder film produced the smallest mean overall negative mood increases from baseline. Analysis of variance revealed that there was a main effect of film on overall negative mood ratings ($F(5,210)=5.127$ $P=0.001$). Subsequent post hoc tests showed that ratings for the Fictitious Murder film were significantly smaller than for all films save the Real Football film. The Real Riot, Fake Riot and Real War films all produced significantly greater overall negative mood increases than did the Fictitious Prison film. Lastly ratings for both the Real War and Fictitious Riot films were significantly different from the Real Riot Film.

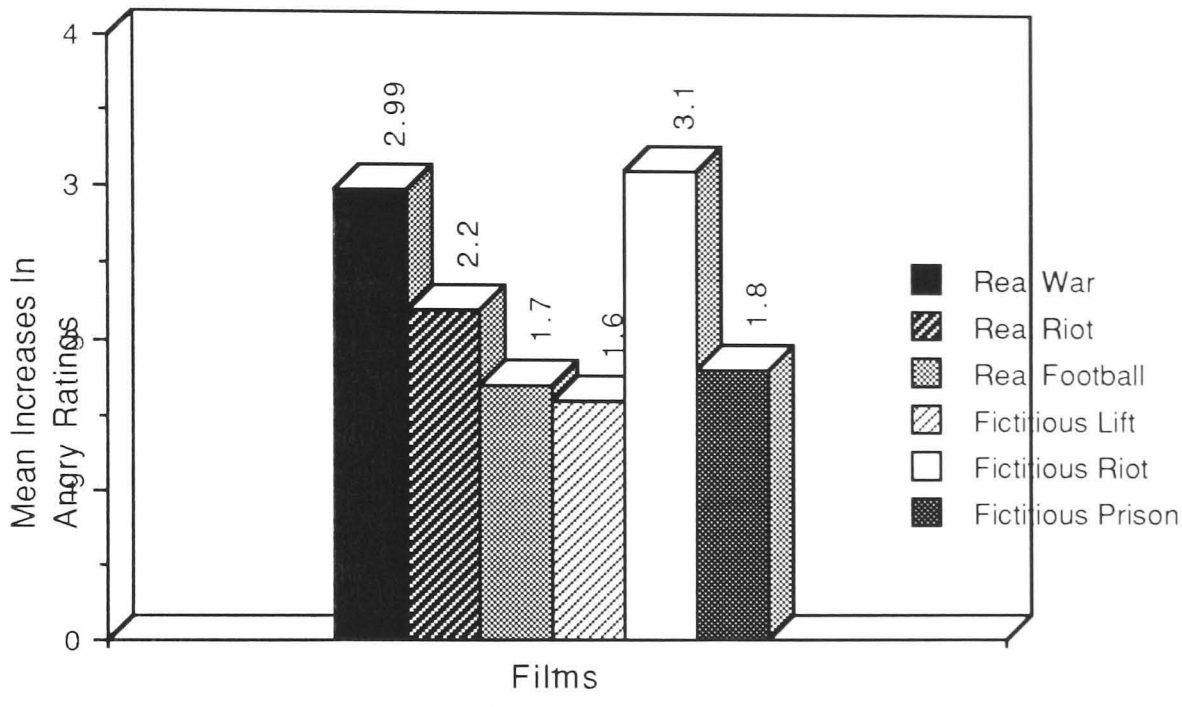


Figure 6.11 Mean Increases In Anger Ratings From Baseline Measures Of All Participants To The Six Films.

Analysis of variance revealed that there was a main effect of film upon angry mood ratings ($F(6,30)=11.596$ $P=0.000$). As can be clearly seen from Figure 6.11, all six films produced increases in feelings of anger from baseline measures. Subsequent post hoc testing revealed that mean angry rating increases to the Fictitious Riot film were significantly greater than for any of the other five films. The Real War film rating increases were significantly greater than to all films except to the two Riot films. The Real Riot Film accounted for significantly greater increases in Angry ratings than the Fictitious Murder film.

Sad

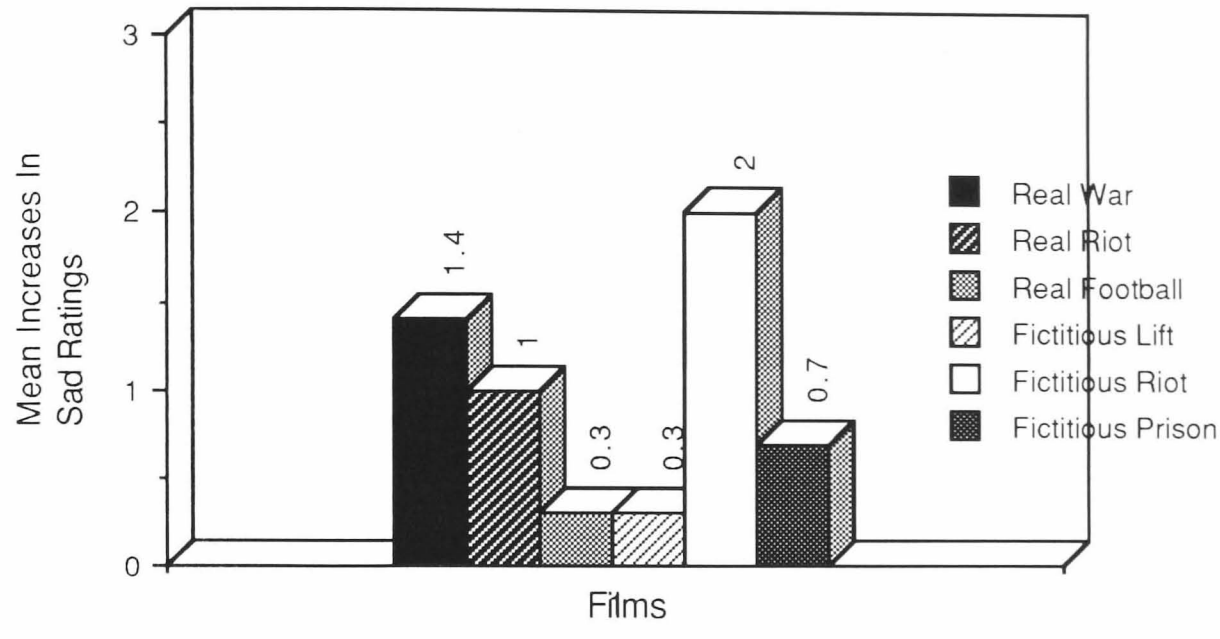


Figure 6.12. Mean Increases In Sad Ratings From Baseline Measures Of All Participants To The Six Films.

As can be seen from Figure 6.12 participants' self-reported sadness levels increased from baseline to all six films. Analysis of variance revealed that there was a main effect of film on sad ratings ($F(6,30)=5.279$ $P=0.000$). As with the anger rating results, the Real War and the Fictitious Riot films accounted for the largest increases in feelings of sadness, while again also, it was the Real Football and the Fictitious Murder films that produced the smallest increases. Subsequent post hoc testing revealed that ratings for the Fictitious Riot film were significantly different compared to the ratings of the other five films. The Real War film produced significantly greater increases in Sad ratings than did either the Real Football, Fictitious Prison or the Real Riot films. The Real Riot in turn produced significantly greater increases than both the Fictions Murder and Prison films.

Clutched Up

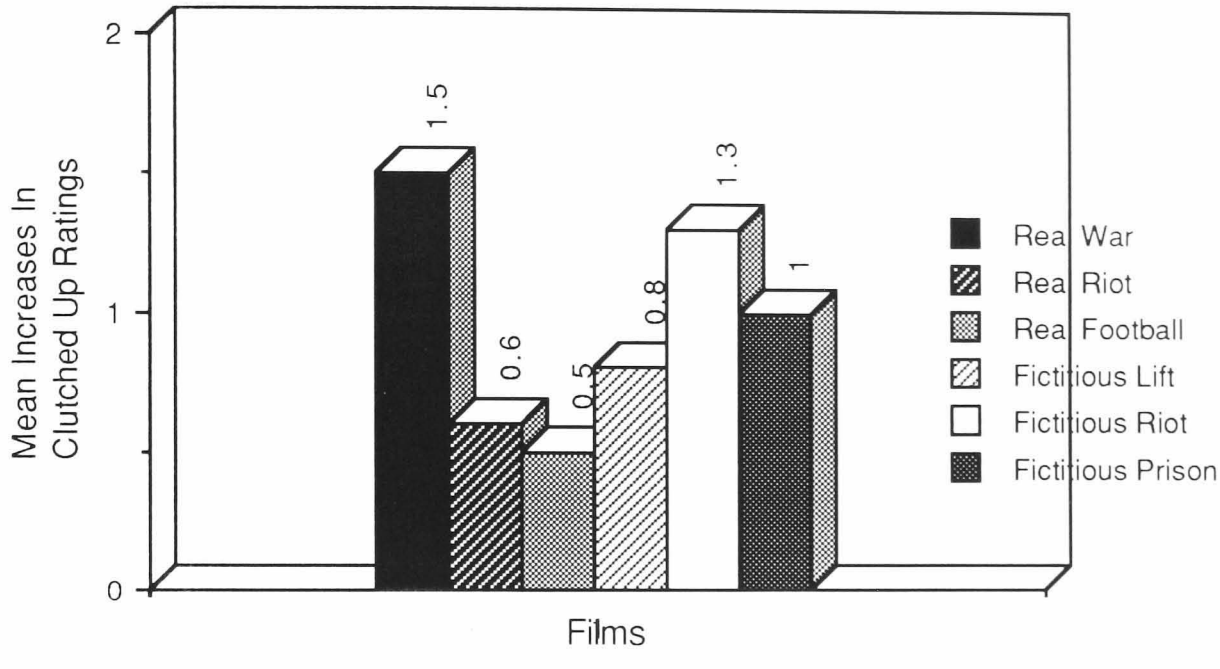


Figure 6.13. Mean Increases In Clutched Up Ratings From Baseline Measures Of All Participants To The Six Films.

Analysis of variance once again revealed a main effect of film on participants Clutched Up ratings($F(6,30)=3.803$ $P=0.001$). Subsequent analysis (Newman-Keuls) revealed that the Real War film produced significantly greater increases in Clutched Up ratings than all films except the Fictitious Riot Film. The latter film in turn, significantly greater increases than did either the Real Football, Real Riot or Fictitious Murder films.

Sorry

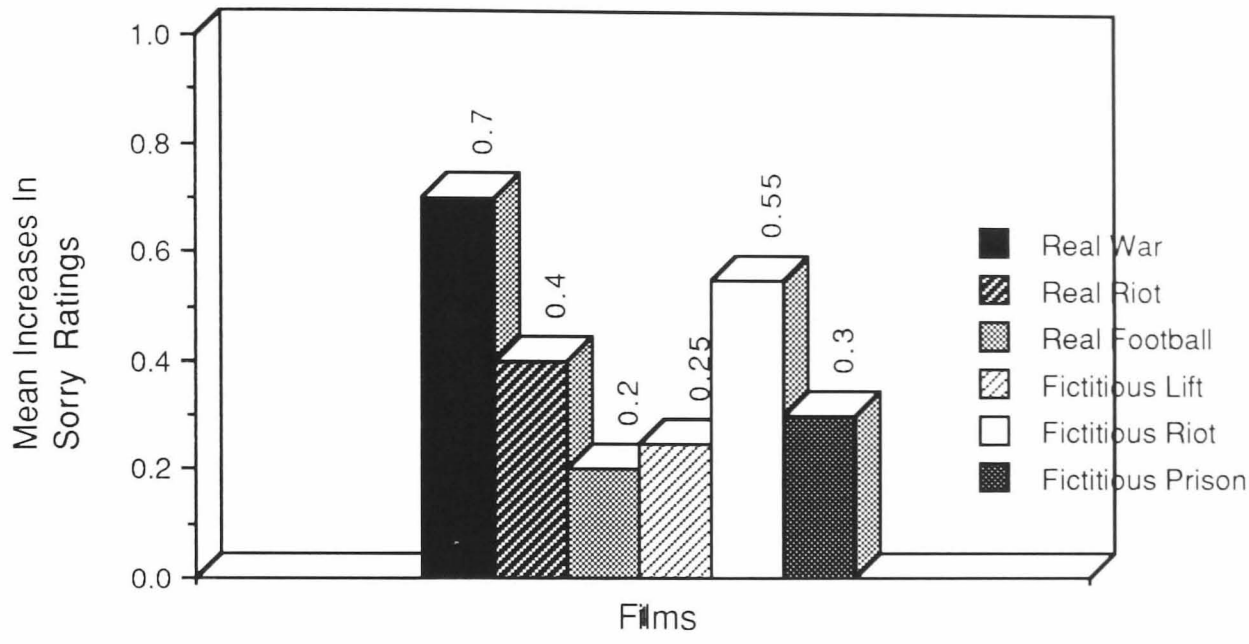


Figure 6.14. Mean Increases In Sorry Ratings From Baseline Measures Of All Participants To The Six Films.

As can be seen in Figure 14, differences in Sorry ratings over the six films seemed to be small. Analysis of variance revealed that unlike the other negative mood ratings, participants' ratings of how Sorry they perceived themselves to be were not significantly different across the six films ($F(6,30)=0.991$ $P=0.432$).

Positive Mood Analysis

Overall Positive Mood Analysis

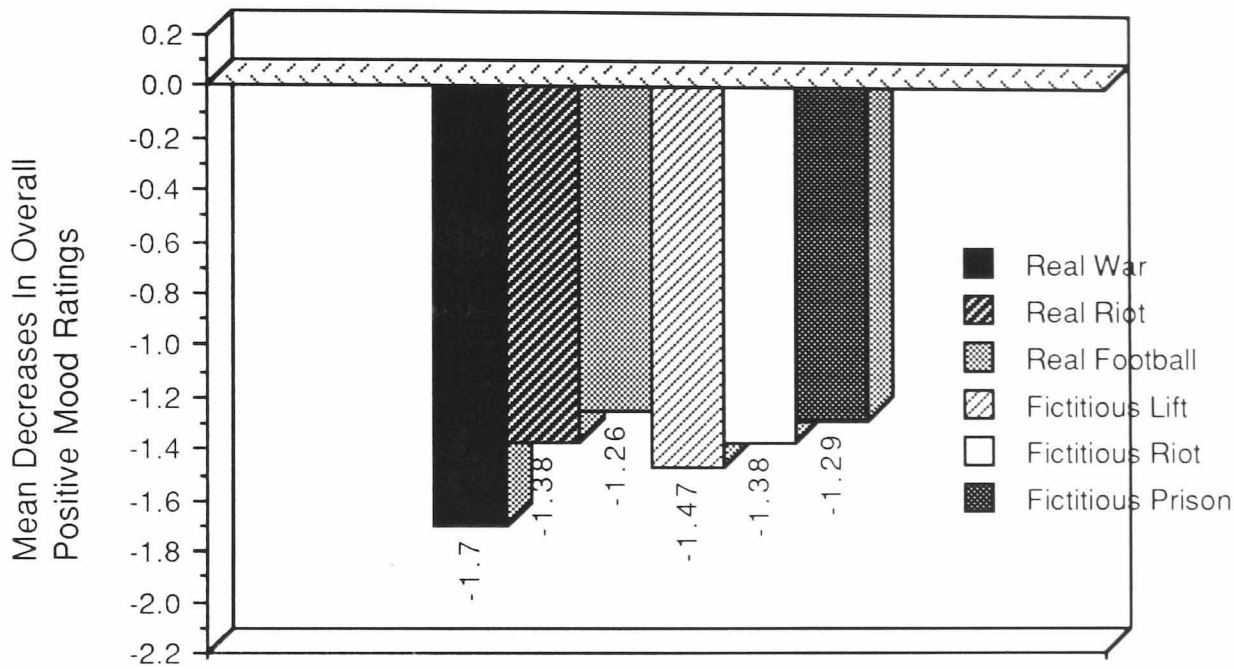


Figure 6.15. Overall Mean Positive Mood Rating Increases From Baseline For All Participants To The Six Films.

Analysis of variance revealed that there were no significant differences in participants' Overall Positive Mood Ratings over the six films ($F(5,210)=0.628$ $P=0.628$).

Participants' Questionnaire Analysis.

As participants were asked to mark an 80mm line where 0mm= Very much so and 80mm= Not at all (see Appendix) all figures for these results are quoted in mm. The smaller the number, the stronger the attitude experienced by the participant.

	Real War	Real Riot	Real Football	Fictitious Murder	Fictitious Riot	Fictitious Prison
Personal Interest	34.4	32.8	47.1	45.6	33.6	42.3
Personal Involvement	28.5	33.5	46.5	37.9	21.9	34.2
Film Violence	17.1	39.4	37.9	20.4	25.9	28.4
Film Reality	7.9	12.6	17.9	38.8	19.6	36.3
Film Vividness	12.5	31.9	35.2	28.6	28.2	29.7

Table 6.1 Mean questionnaire responses by all participants across the six films.

As can be seen from Table 6.1, participants showed the greatest interest towards the Real and Fictitious Riot films and the least amount of interest to the Real Football film. Analysis of variance revealed a main effect of film upon participants' Interest ratings ($F(5,31)=2.344$ $P=0.043$). Post hoc tests (Newman-Keuls) revealed that interest ratings for the Real Riot, Fictitious Riot and the Real War films were all significantly greater than for the other three films.

Participants rated themselves as being most involved in the Fictitious Riot film and least to the Real Football. Analysis revealed that there was a main effect of film upon participants' personal involvement ratings ($F(5,31)=4.740$ $P=0.001$). Subsequent analysis

revealed that ratings of involvement were significantly less to the Real Football film compared to any of the other five films. Participants' involvement ratings were significantly greatest for the Fictitious Riot film compared to the other films. Lastly that the Real War film evoked significantly more involvement than the Real Riot film.

It was evident that there was also a main effect of film upon participants Film Violence ratings ($F(5,31)=7.873$ $P=0.001$). Analysis revealed that the Real War film was rated as significantly more violent compared to all films except the Fictitious Murder film. Ratings for the Real Riot film were significantly smaller compared to all other films except the Real Football film. There were also significant differences evident in film violence ratings between the Fictitious Murder, the Fictitious Riot and the Fictitious Prison films.

Analysis of Film Reality ratingsrevealed that there was a main effect evident of film upon ($F(5,31)=18.371$ $P=0.001$). Post hoc testing revealed that the Real War and Real Riot films Reality ratings were significantly greater than for any of the other films. The Real Football reality ratings were significantly greater than both the Fictitious Murder and Fictitious Prison films but not the Fictitious Riot film.

Lastly analysis of Film Vividness ratings revealed that there was a main effect of film ($F(5,31)=5.030$ $P=0.001$). Subsequent analysis revealed that Vividness ratings for the Real War film were greater than for any of the other films. The only other significant differences were between the Fictitious Murder and Fictitious Riot films compared to the ratings for the Real Football film.

Analysis of variance revealed no effects of Imagery on any of the five rating scales: Interest ($F(5,31)=0.989$ $P=0.425$); Violence ($F(5,31)=1.408$ $P=0.223$); Reality ($F(5,31)=1.368$ $P=0.238$); Vividness ($F(5,31)=1.265$ $P=0.281$) and Involvement ($F(5,31)=0.249$ $P=0.940$).

	Real War	Real Riot	Real Football	Fictitious Lift	Fictitious Murder	Fictitious Prison
Males Involvement	26.8	25.5	39.5	30.4	20	32.1
Females Involvement	30	40.7	52.7	44.5	23.6	36.2
Males Interest	24.6	20.1	34.2	38.1	25.8	41.4
Females Interest	43.2	44.2	58.7	52.3	40.5	43.2
Males Film Violence	13.3	30.3	34	23.3	22.5	31.1
Females Film Violence	20.6	47.7	41.4	17.9	29.1	26.1
Males Film Reality	2.9	12.1	13.2	30.4	25	32.8
Females Film Reality	12.5	13.2	22	46.4	14.8	39.4
Males Film vividness	8.9	22.6	27.9	24.8	23	32.1
Females Film Vividness	15.8	40.2	41.6	31.9	32.8	27.5

Table 6.2. Mean questionnaire responses by males and females across the six films.

Analysis involving gender revealed that there was a main effect of gender on the rating scales for Involvement ($F(1,35)=8.301$

P=0.004); Interest (F(1,36)=24.962 P=0.001); Film Realism (F(1,36)=5.121 P=0.025) and Film Vividness (F(1,35)=9.005 P=0.003) in that males gave greater ratings than females on these scales. Differences in Violence ratings between males and females were not significant (F(1,35)=3.272 P=0.072).

	Real Films	Fictitious Films
Involvement	36.2	31.3
Interest	38.1	40.5
Violence	31.5	24.9
Reality	12.8	31.6
Vividness	26.54	28.8

Table 6.3 Mean questionnaire responses by all participants between real and fictitious films.

It can be seen from Table 6.3 that participants rated themselves to be most involved in the Fictitious films. These relatively small differences proved not to be significant however(F(1,35)=1.487 P=0.138).

Participants rated the Real films to be marginally more interesting than the Fictitious films in general, but again these differences were too small to be significantly different (F(1,35)=0.674 P=0.501).

Interestingly it was the Fictitious films in general that were judged to be those depicting the most violence by all subjects. These differences proved to be significant in further analysis (F(1,35)=2.338 P=0.020).

As expected the Real films were those rated as most realistic by the participants (F(1,35)=7.361 P=0.000). It is also interesting to note that participants mean ratings of the fictitious films were in the realistic half of the rating scale.

The real films were rated as portraying more vivid events than the Fictitious films. However ratings of the two film types were

very comparable and analysis revealed no significant differences between these ratings ($F(1,35)=0.755$ $P=0.451$).

	Vividness	Realism	Violence	Involved	Interest	Angry
Vividness						
Realism	***					
Violence	***	***				
Involved		*	**			
Interest				***		
Angry				***		

Key:

* = P< 0.05

** = P< 0.01

*** = P<0.001

Table 6.4 Matrix of correlations between rating scales of the questionnaire.

From Table 6.4, it can be seen that there were highly significant correlations between ratings of vividness and realism (.707), vividness and violence (.717), and between realism and violence (.672). There were also significant correlation's between ratings of film violence and personal involvement (.490), and ratings of film realism and personal involvement (.363).

It is also evident that there was a highly significant correlation between participants' ratings of personal involvement with personal interest (.549) and a highly significant negative correlation between personal involvement and personal aggression (-.513). This last correlation is slightly misleading due to the nature of the rating scales, in that a higher rating was seen from a lower score (: 0-80mm, with 0mm indicating 'Very much so' and 80mm indicating 'Not at all'). Thus the correlation reflects the fact that as participants personal involvement ratings increased, their personal aggression ratings also increased.

	ANGRY	CLUTCH	SAD	SORRY	CFREE
ANGRY	1.000				
CLUTCH	0.212	1.000			
SAD	0.143	-0.237	1.000		
SORRY	0.642	-0.117	0.135	1.000	
CFREE	0.122	-0.349	0.157	0.256	1.000
PLEASED	-0.161	-0.056	-0.161	-0.064	-0.191
WARMHTD	0.088	-0.272	0.045	0.200	0.108
KINDLY	0.213	-0.163	0.134	0.299	-0.009
HRCHANGE	0.149	0.064	-0.189	0.095	-0.048

	PLEASED	WARMHTD	KINDLY	HRCHANGE
PLEASED	1.000			
WARMHTD	0.360	1.000		
KINDLY	0.091	0.345	1.000	
HRCHANGE	0.102	-0.128	-0.107	1.000

Table 6.5 Correlation Matrix of Mood Ratings And Heart Rate Changes.

From the above correlation matrix it is evident that there was a large correlation between viewers' anger and sorry ratings. This correlation proved to be significant. Three other correlations just failed to reach signicance levels: between clutched up and carefree ratings, pleased and warmhearted, and warmhearted and kindly ratings.

Subsequent analysis involving differences in these correlations between imagery groups proved interesting (see Tables 6.6 and 6.7 overpage).

ANGRY	1.000				
CLUTCH	0.053	1.000			
SAD	0.103	-0.256	1.000		
SORRY	0.686	-0.257	0.161	1.000	
CFREE	0.215	-0.464	0.278	0.537	1.000
PLEASED	0.237	0.145	-0.130	-0.009	0.138
WARMHTD	0.226	-0.234	0.087	0.216	0.446
KINDLY	0.007	-0.450	0.084	0.185	0.482
HRCHANGE	0.421	-0.006	-0.303	0.166	-0.288

	PLEASED	WARMHTD	KINDLY	HRCHANGE
PLEASED	1.000			
WARMHTD	0.464	1.000		
KINDLY	0.012	0.319	1.000	
HRCHANGE	-0.040	-0.156	-0.183	1.000

Table 6.6: Correlation Matrix of Mood Ratings And Heart Rate Changes For High Imagers.

There were significant correlations between high imagers Angry and Sorry ratings; Carefree and Clutched Up ratings; Kindly and Clutched Up ratings, Carefree and Sorry ratings; Warmhearted and Carefree ratings and between Kindly and Carefree ratings. The correlation between Heart Rate Changes and Angry mood rating (.421) also proved to be significant. On average high imagers' anger ratings increased by 1.9 while their heart rates decreased by 0.7 beats per minute.

ANGRY	1.000					
CLUTCH	0.476	1.000				
SAD	0.263	-0.216	1.000			
SORRY	0.545	0.170	0.036	1.000		
CFREE	0.005	-0.239	-0.028	-0.168	1.000	
PLEASED	-0.678	-0.261	-0.273	-0.181	-0.443	
WARMHTD	-0.171	-0.341	-0.099	0.153	-0.247	
KINDLY	0.498	0.144	0.243	0.522	-0.392	
HRCHANGE	-0.140	0.146	-0.084	-0.005	0.178	

	PLEASED	WARMHTD	KINDLY	HRCHANGE
PLEASED	1.000			
WARMHTD	0.190	1.000		
KINDLY	0.107	0.327	1.000	
HRCHANGE	0.154	-0.242	-0.122	1.000

Table 6.7: Correlation Matrix For Mood Ratings And Heart Rate Changes For Low Imagers.

Of the correlations depicted above there was only one which proved to be significant, that between the ratings of Kindly and Sorry. It was evident that as low Imagers Angry ratings increased on average by 1.9, their heart rates were also seen to increase by 0.4 beats per minute. This pattern could reflect Reisenzein's (1983) suggestion that increments in physiology serve as intensifiers to emotional experience.

Analysis of Film Recall.

At the end of the experiment, participants were asked which of the six films they had just viewed was the first they could recall.

First Film Recalled	Real War	Real Riot	Real Football	Fictitious Riot	Fictitious Murder	Fictitious Prison
Number of Partici-pants	52.8%	5.5%	2.8%	25%	8.4%	5.5%

Table 6.8. First Recall Rates Of Films.

These figures support the experimental prediction that it would be the films that accounted for the greatest increase in physiology and those that were rated as most vivid that would be subsequently recalled sooner. The Real War film produced significantly greater increases in participants heart rates (see Figure 6.1) and was also the film rated as the most vivid (see Table 6.1). As can be seen from Table 6.8 over 50% of the participants recalled the Real War film before any of the other five films. Less than half of this number recalled the Fictitious Riot film before any other film. This film in turn was the second film recalled first by 25% of participants. Interestingly this film accounted for the least elevated heart rates but was rated as the second most vivid film, after the Real War film. The Fictitious Murder film was recalled first by 8.4% of participants, third out of the six films. It accounted for the fourth highest level in participants' heart rates and was rated as the third most vivid film.

Type of Film	Real	Fictitious
High Imagers	50%	50%
Low Imagers	72%	28%

Table 6.9. The Percentage Of Films First Recalled By High And Low Imagers.

It can be seen from Table 6.9 that while the High Imagers recalled Real films as much as fictitious ones as their first film, there was a big difference in Low Imagers' recall. Low Imagers first recall rate for Real films was much higher than for Fictitious films. Subsequent t test analysis between real and Fictitious first recall rates in Low Imagers' revealed that this difference was indeed significant ($t=2.390$ $P=0.038$).

Discussion.

Although there were no significant differences in participants' physiological responses across the real-fictitious factor there were differences and these were supportive of the results reported in Chapter 4. Participants' heart rates were significantly more elevated to the Real films than to the Fictitious ones. The results on participants' EDA responses were also supportive of this trend but, as predicted, to a smaller degree. Two out of the three Real films produced the greatest increases in participants' EDA. Taken as a whole the real films produced more increases in participants' physiology than did the Fictitious films. These results offer support for the existing literature that has suggested that it is those films/events regarded by the viewer to have actually occurred that are most likely to evoke the greatest emotional responses (Garry, 1967 & Chaney, 1970; Berkowitz & Alioto, 1973; Feshbach, 1972; Meyer, 1970). Coupled with the results reported in Chapter 4, the support offered for this effect is far more substantial.

These results support the proposition that it is the perception of reality of violent or aggressive events rather than the severity of violence portrayed in them that plays a more influential role upon subsequent viewer responses. Table 6.1 depicts the mean ratings of all participants to the six films. It can be seen that participants rated the Real War film as being the most violent of the films. However the Fictitious films are seen to have been rated the second, third and fourth most violent of the six films, with the Real Riot and Real Football being rated as the second least and least violent films respectively. If film violence is the major determinant of viewers' physiological reactions, then judging from the violence ratings the Fictitious films should have accounted for the most elevated heart rate and EDA scores after the Real War film. In fact they did not (see Figures 6.2 and 6.4). In actual fact they accounted for the least elevated heart rates and only one out of the three highest EDA increases. However, it can be seen from Table 6.1 that the Real films were perceived by participants as being most realistic, with all three fictitious films rated as the

least realistic. These ratings are far more predictive of participants' heart rate and EDA responses. This is supportive of other data which have indicated that media violence which is perceived as realistic elicits greater effects upon viewers' physiological reactivity (Geen, 1975; Geen & Rakosky, 1973).

The fact that the Real War film was the only film that produced an increase in both heart rates and EDA suggests further that increases in physiology are susceptible to viewers' cognitions about the violence watched. If viewers' physiology merely responded to the films then all six films should have caused a similar pattern. Yet the films evoked differential physiological patterns in the participants. Viewers' cognitions would not only assess the context of the violence watched but also the familiarity with the violent events depicted. Thus novelty could also play an influential role in viewers' physiological responses to film violence. Just as with any novel stimuli a person undergoes orientation to events depicted on the screen. The more novel the situation or event depicted or the more unfamiliar it is, the greater the readiness to respond to it. This includes heightened physiological arousal. Griffiths and Shuckford (1989) have suggested that novelty is one of the main factors which can influence desensitization to media violence. They propose that desensitization is likely to occur when the stimuli no longer remain important, stimulating and/or novel. Thus desensitization occurs when an expectation (formed through past experience and based on the above criteria) determines the subsequent behavioural response by failing to initiate a psychophysiological reaction to the violence.

The Real War film arguably portrayed the most novel events in this study. It depicted an actual execution. This ultimate form of violence is both final and horrific in its portrayal. An unarmed and bound man being mercilessly shot point blank in the head presents a stark image for the viewer. The fact that the Real War film was rated as by far the most vivid and most violent bears out this fact. Few people have had the misfortune to actually witness a real life execution. The situation compared to the other films

events/situations is for the vast majority of people a very novel one. Thus as suggested by Griffiths and Shuckford (1989), it may be because it is perceived as highly novel, that participants' physiology was seen to be the most reactive to it (see Figures 6.2 and 6.4).

Differences between high and low imagery groups' heart rates across the real-fictitious dimension proved to be significant, and these differences were once again in the direction predicted and supportive of the results reported in Chapter 4.

As can be seen from Figure 6.4 the low imagers' mean heart rates are significantly more elevated to the Real films than heart rates for high imagers. From Figures 6.5 and 6.6 it can be seen that for the low imagers there was a significant difference in their mean heart rate increases between real and fictitious violence. Their heart rates had increased most from baseline measures to the realistic films. This relationship is not seen for the high imagers. These relationships are supported to some extent by the results of the imagery groups' EDA differences to the two types of films. From Figure 6.8 it can be seen that the low imagers' EDA is more reactive in response to the real films, while in contrast and mirroring the pattern for heart rate responses, the high imagers EDA is seen to be more reactive in response to the fictitious films.

The significant three-way interaction between imagery, film reality and type of film for the low imagery group is interesting and further emphasises the observation that low imagers' are most reactive to film violence they can relate to. It can be seen from Figure 6.6 that low imagers' heart rates to the Real films have increased most to the most violent film and least to the least violent film. In comparison their heart rates for the Fictitious films show most increases for the least violent film and the least increase for the most violent film. Arguably the most violent Ficitious film was that which depicted well-known Hollywood actors and as such reinforced the fictitious nature of this film. The least violent Fictitious film was also that which was arguably the most believable of the three fictitious films and perhaps this

allowed the low imagers to relate to it more readily rather than to the other two fictitious films.

These differences support the suggestion that realistic events have a more pronounced effect of low imagers' physiological responses. The violent images that are portrayed are real and therefore easily accessible to the low imager. No imagery or imagination is required to put these events into context. The low imager, unlike the high imager, lacks the skills to emotionally distance themselves from such violent and vivid events. It could be because of this that the low imager perceives some form of threat in the events depicted. As a result their physiological arousal becomes heightened, as it does to any perceived threatening stimuli. Thus, as suggested by Zillman (1971) these sudden increases in physiological arousal could well be mis-attributed to provocation. A similar process could also explain the heightened arousal of in response to fictitious violence. By being able to transpose these events into real scenarios high imagers are stimulated by associated experiences and thoughts. The high imager has to draw feasible boundaries of existence around these fictitious events by reality testing. Thus the high imager must draw on past experience, stored images and contextual knowledge to conjure situations where these fictitious acts of violence might actually occur. By engaging in this process, Berkowitz (1984) has suggested " the aggressive ideas suggested by a violent movie can prime other semantically reacted thoughts, heightening the chances that the viewers will have other aggressive ideas in this period".

These results support the work of Marcia Johnson (Johnson, Raye, Wang & Taylor, 1979; Johnson & Raye, 1981; Johnson, Taylor & Raye, 1981) who observed that viewers with high imagery ability tended to incorporate imaginary events into sequences of actually perceived events to a greater extent than viewers with poorer imagery abilities. Thus high imagers unlike their low imagery counterparts possess the skills necessary to be able to relate more readily to fantasy or fictitious situations and because of this are more capable of either transposing them into events with the

potential for real existence or confusing imaginations with actual perceptual experiences (Johnson et al, 1979).

The prediction that those films that elicit the greatest physiological changes are those recalled sooner in the post-experimental time period were also given support by these results. As can be seen fromTable 6.8 the Real War film accounted for over 50% of first-recalls. The Fictitious Riot film was the first film recalled by only 25% of participants. These results are comparable to participants' overall physiological responses. The Real War film elicited the only increase in participants' heart rates and the highest increases in EDA scores along with the Fictitious Riot film. The other four films share similar physiological patterns and this is also comparable to the patterns of film recall depicted in Table 6.8. These results lend support to Frost & Stauffer (1987) who reported that it was a film of real violence which caused the greatest physiological change, and which was recalled sooner post-experimentally.

More importantly it seems likely that participants' perception of film vividness also plays an influential role in subsequent film recall. Participants rated the Real War film as being far more vivid than any of the other films (see Table 6.1). As can be seen from Table 6.8, this film was recalled first by over 50% of participants. The Fictitious Riot was rated as the second most vivid of the films, and accounted for 25% of the first film recalls the second highest figure. The Fictitious Murder film follows the same pattern, accounting for the third highest vividness rating and was in third place also for first recalls.

Analysis of first film recall supported the prediction that there would be differences between high and low imagery groups across the real-fictitious dimension. It can be seen from Table 6.8 that not only did low imagers report real films more frequently as their first film recalled as compared to than high imagers, they also recalled these real films nearly three times as much as the fictitious films and these differences were found to be significant. In comparison high imagers reported as many fictitious films as

real films as the first film that they recalled. This supports the suggestion that it is those films producing the greatest physiological change that are recalled sooner. Low imagers showed greater physiological changes to the real films than the fictitious ones. Low imagers also subsequently recalled the real films sooner than the fictitious ones.

Analysis of participants' questionnaire ratings were interesting. Results suggest that viewers' physiology is susceptible to factors such as context, which have been observed to produce differing behavioural responses in previous studies. The Real War film and the Fictitious Riot film produced the greatest overall negative emotional response by participants (see Figure 6.10). As suggested in Chapter 4 it would seem that increases in physiological arousal act as intensifiers to subsequent emotional experiences (Reisenzein, 1983). Both the Real War and Fictitious Riot films accounted for the greatest overall physiological activity (see Figures 2 and 7). From Figure 6.10 it can be seen that these two films produced the greatest increases in overall negative mood responses.

A bi-directional relationship appears to exist between viewers' cognition and their physiology. While participants' physiology was more elevated to the real films, subsequent cognitive interpretation could have regulated this increase. These films were not rated as highly violent or particularly vivid and this coupled with the fact that participants rated themselves not to be particularly involved in these films seemed to have canceled out the increases in physiology. As a result only moderate overall negative emotions were reported (see Figure 6.10). For the Fictitious Riot and Murder films in comparison, while physiological activity was slight, negative cognitive interpretation appears to have heightened. Here the fictitious films were perceived as more violent and vivid. As a result, as with the two real films, moderate overall negative emotion was reported (see Figure 6.10). Thus there seems to be a balancing effect between participants' physiological arousal and cognitive interpretation resulting in a moderate emotional response.

Results from correlations between mood rating changes and heart rate changes proved interesting. Initially there seemed to be no relationship between these two factors when participants. are considered overall. However when the data were seperated out for imagery groups some interesting relationships were evident. It was evident that there was a different relationship between heart rate increases and anger ratings between the two imagery groups. While the relationship within the low imagery group seemed to follow the pattern suggested by Schachter and Singer (1962) with increases in heart rate being accompanied by increases in anger ratings, this pattern was not observed in the high imagery group. In this group heart rates decreased while anger ratings increased. Perhaps the high imagers' anger increases were more influenced by their actual imagery. Despite the decreases in heart rate, they were able to maintain increases in negative mood experience by being more able to hold and rehearse the violent images they had seen. Low imagers on the other hand do not possess these enhanced imagery skills, but instead are susceptible to their heightened physiological state which maintains their negative mood experience.

In summary, there were differences evident in viewers' physiology to real and fictitious films although not at a significant level. The differences are supportive of the hypothesis that realistic screen violence has more to influence viewer's physiological arousal. The results also suggest that increments in physiology may act as amplifiers of resulting emotional states, primarily intensifying negative moods.

Chapter 7

Study 4

Introduction

This fourth and final study is an attempt to consolidate the results found in the first three studies. It has been seen that viewers psychophysiological activity in response to screen violence is more elevated to footage which is perceived as depicting novel events and also those which are perceived as depicting realistic violence. It has also been suggested from these results that physiological arousal could indeed have an intensifying effect on subsequent emotional states. Results thus far have revealed that the features of screen violence that have been found to change levels of behavioural aggression in previous studies (i.e., real versus fictitious or the context of the violence, etc.) also have a similar effect upon viewers' physiological activity. The observation of these equivalent effects suggests that physiological processes are a substrate of aggression. For if there were no cognitive effects on viewers' physiological activity but effects on emotional responses then these effects would ocur at a higher, interpretive level only. Study 4 continues to investigate these observations on cognitive evaluation processes in viewers' appraisal of screen violence.

From the results of Study 3 it can be observed that the type of screen violence definitely plays an influential role in the viewer's responses to the violence they watch. It was suggested that event novelty might account for this effect. It was also observed that while viewers showed both differentiatal physiological activity and mood experience to the different types of screen violence, such contextual effects seemed to play a stronger influential role upon low imagers than it did high imagers. Low imagers showed more elevated physiology to films that were considered high in violence-severity than high imagers. Study 4 was intended to further examine this effect. Three films were to be utilized, which through pilot work, had been rated as high in novelty, medium in novelty and low in novelty. It was proposed that the film high in novelty would result in the largest increases in a participant's heart rate, while it was expected that the film low in novelty would produce smaller effects in physiological arousal. It was also proposed that the low visual imagers would, compared to the high

imagers, produce the largest increases in heart rate across all three films for two reasons. Firstly the results of Study 3 suggested that low imagers show greater increases in physiological activity to novel screen violence than high imagers. Secondly, the three films to be used all depicted real-life events, and as reported in the other three studies low imagers seemed to be more susceptible to physiological activity change in response to real violence than high imagers. In view of this it was expected that even for the film low in novelty, the low imagers would show greater increases in their heart rates than would high imagers.

Viewers' perceptions of the overall motives of the aggressor, as provided by their cognitive interpretation system, should also play an important role in their subsequent responses to that violence. Malamuth and Check (1981) reported that men exposed to programmes depicting and implicitly justifying sexual violence towards women showed greater acceptance of it. These results are worrying and carry wide-ranging implications. At the very least they suggest that moral interpretations may have an important role to play screen violence effects. From the limited research in this area it has been suggested that attributions and moral evaluations contribute to the extent to which aggression is inhibited (Berkowitz, 1984; Ferguson & Rule, 1983; Rule & Ferguson, 1984; Rule & Ferguson, 1986).

Justification of violence is both perceived from and in itself adds to the understanding of the context of the violence depicted. While it has been reported that unjustified violence as opposed to justified violence elicits increases in aggressive responding (Berkowitz & Geen, 1967; Geen, 1976; Rule & Nesdale, 1976) will it also increase viewers' physiological responses and negative mood states? As the results obtained thus far strongly indicate that a viewer's physiological and negative mood states mirror results for aggression levels (as reported in the general literature) to such variables as reality and novelty it was predicted that a similar pattern would be evident for justification of violence. Thus as it has been reported that viewers' aggression levels increase more in response to unjustified media violence, it was predicted that

participants would show greater increases in their negative mood scores to those films depicting morally unjustified violence and should exhibit, in contrast, fewer mood changes for morally justified violence.

The combined effects of novelty and cognitive interpretation upon viewers' subsequent physiological and emotional responses to film violence would also be investigated. As has been seen even in its revised form Schachter and Singer's (1962) theory of emotion predicts that a person's cognition molds undifferentiated arousal into a specific emotional state and that physiological arousal has the ability to intensify these final emotional states. Thus increased physiological activity to screen violence that is perceived by the viewer's cognitive system as being negative in nature and which brings about a negative emotional state (anger, sadness, etc.) as a result, should intensify this negative emotional state.

It was predicted that the violent film perceived as morally unjustified and containing high levels of novelty (unjustified real war film) would have the most detrimental effect on viewers' behaviour and result in the greatest overall increases in viewers' heart rates and negative mood states such as anger, sadness, anxiety, etc. This effect in turn would also be expected to be more exaggerated in low imagers than for high imagers. For here the violence is real and novel, factors that have been seen to have a greater effect on low imagers in comparison to high imagers. The fact that the violence is unjustified reinforces the harshness of the images perceived by the low imager by adding strong negative cognitive interpretation of such events.

Method

Subjects

One hundred-and-twenty participants were initially screened for the experiment by completing the VVIQ (See Appendix A). From these a total of 36 participants were used, 18 of who were high

imagers and 18 of who were low imagers. Of these there were 17 males and 19 females. There were 18 subjects in each of the violence justification conditions, 9 of whom were high imagers and 9 of whom were low imagers. All participants were sampled from both the full-time and part-time student undergraduate populations and ranged in age from 19 to 40 years.

Videotapes

Three tapes each approximately 2 minutes in length were selected. The three tapes showed footage of real-life violence. The three clips were chosen for their 'novelty value' based on ratings obtained from 20 students.

The three films showed:

1.A Vietnamese man is shot by southern Vietnamese troops. Rated as being high in novelty.

2. Footage of the 1992 Los Angeles race riots, in which people are dragged from their cars and beaten by rioters. There is commentary from witnesses. Rated as being medium in novelty.

3. Footage of a heavy weight boxing match. Rated as being low in novelty.

The three film clips were used in both the unjustified and justified violence conditions.
Violence Justification Manipulation

Accompanying the three films was an introducton sheet. This was read by all participants just prior to viewing the first film clip. This introduction sheet manipulated the perception of the justification of the the violence to be seen. Each film had both a justified and unjustified violence introduction.

For example, for the war film the justified violence introduction sheet told the participant that a notorious terrorist who had been

responsible for the deaths of innocent civilians had been trapped and arrested by local army forces. For the unjustified violence condition the participants were led to believe that the man was an innocent civilian who had been captured by invading soldiers.

The moral justification of the boxing and riot films were also manipulated in this fashion. The former was introduced as a friendly charity match or a grudge match, and the latter as a gang attacking innocent people in a traffic jam or a local community exacting revenge upon an escaping gang who had been responsible for the killing of three local innocent civilians.

Rating Scales

During the experiment participants completed a set of graphic rating scales to each of the three films. Five ratings were measured: film violence, personal involvement, personal interest, vividness of violence portrayed, and film realism.

Each rating was laid out in such a way that a 80mm line ran between 'Not at all' to ' Very much so '. Participants were asked to dissect the line with a pen line, so that a line nearer the 'Not at all' end of the scale on, for example, the Film Aggression rating would indicate that the subject did not think the film was aggressive.

See Appendix D for an example of these rating scales.

Physiological Measures

All physiological activity was measured continuously throughout the experiment using an 8-channel Grass Model 7D Polygraph. Heart-rate electrodes were attached to each participant's ankles and wrists via crocodile clips and connected to the polygraph. An output lead was taken from the video recorder and attached to an input lead to the Polygraph. This lead marked the occurrences of sound from the video to the polygraph and thus it could be seen precisely where each of the films both started and finished.

Procedure

Participants were divided into two imagery groups: High or Low imagery ability as per their scores on the VVIQ. There were 18 participants in each imagery group.

Participants were randomly assigned to one of the film order presentations of a 3-by-3 Latin Square design. Thus 9 high imagers and 9 low imagers were randomly assigned to each of the justified and unjustified violence conditions. Each participant was seated alone in a sound-attenuated laboratory. Participants were given full instructions regarding their task and the nature of the experiment. They were informed that they would be asked to assess three violent films on a number of rating scales and that, whilst they were doing this, measures of their heart rate would be taken. They were also told that they could stop the experiment at any time should they wish to do so (though none of the participants did so).

Upon receiving written consent by all participants, electrodes to measure heart rate were attached as specified above. Participants were informed that a recap of the experimental instructions would accompany each of the rating scales. Participants were then given the first of their 7 Nowlis Mood Adjective Checklists (NMAC) to complete (See Appendix C). Four positive moods (carefree, warmhearted, kindly and pleased) and four negative moods (sad, angry, clutched up and sorry) were used to analyze subjects' mood changes to the differing film clips.

Following a 5-minute initial resting period each subject watched the presentation of the three film clips according to the experimental condition they had been randomly assigned to (either justified or unjustified violence).

The video contained in sequence:

1) A recap of the experimental instructions.
2) A 2 minute presentation of the first film clip.
3) A 2 minute period to complete the rating scales and the NMAC.

4) A 5 minute resting period.

Stages 2,3, and 4 were repeated for the other 2 film excerpts. During the resting periods a blank screen with no sound was presented to the participants.

At the end of the experimental session the electrodes were removed. Participants were thanked and invited to ask questions concerning the experiment.

Results

Data Reduction.

'R-waves were counted over successive 30 second periods to provide a measure of heart rate. Subsequent values were multiplied by 2 to provide a score in beats per minute. Manova and Anova statistical tests were performed on the data. Independent group t-tests were performed on relevant physiological data, while Newman Keuls tests were utilized for relevant post hoc testing of mood data.

Physiological Responses

Heart Rate Responses

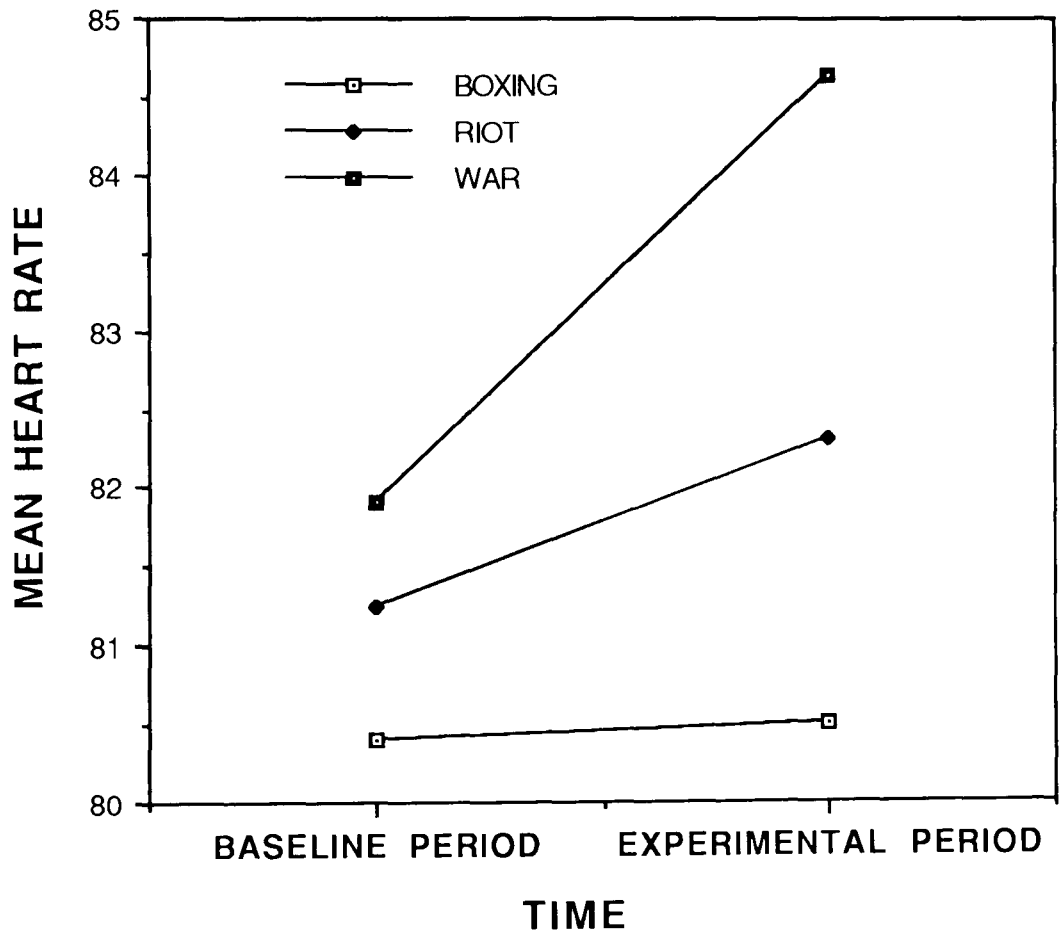


Figure 7.1. Mean Heart Rates Of All Participants From Baseline Across The Three Experimental Films.

As can be seen from Figure 7.1 participants' mean heart rates have increased marginally for the Boxing film, more so for the Riot film and the greatest for the War film. Subsequent t-tests

revealed that while there was no significant difference between baseline and film heart rates for the boxing film (t(35)=0.18 P=0.43) there were significant differences between these periods for both the Riot (t(35)=2.62 p=0.0065) and the War films (t(35)=5.28 P=0.0001). Participants' mean heart rate values are comparable to film novelty ratings. The War film which was rated as being high in novelty is seen to account for the most elevated heart rate, while the Boxing film which was rated as low in novelty is seen to account for the least. These differences in mean heart rates between the three films proved to be significant (F(2,64)=38.67 P=0.0001). Results from t-test comparisons revealed that these differences were significant between all three films.

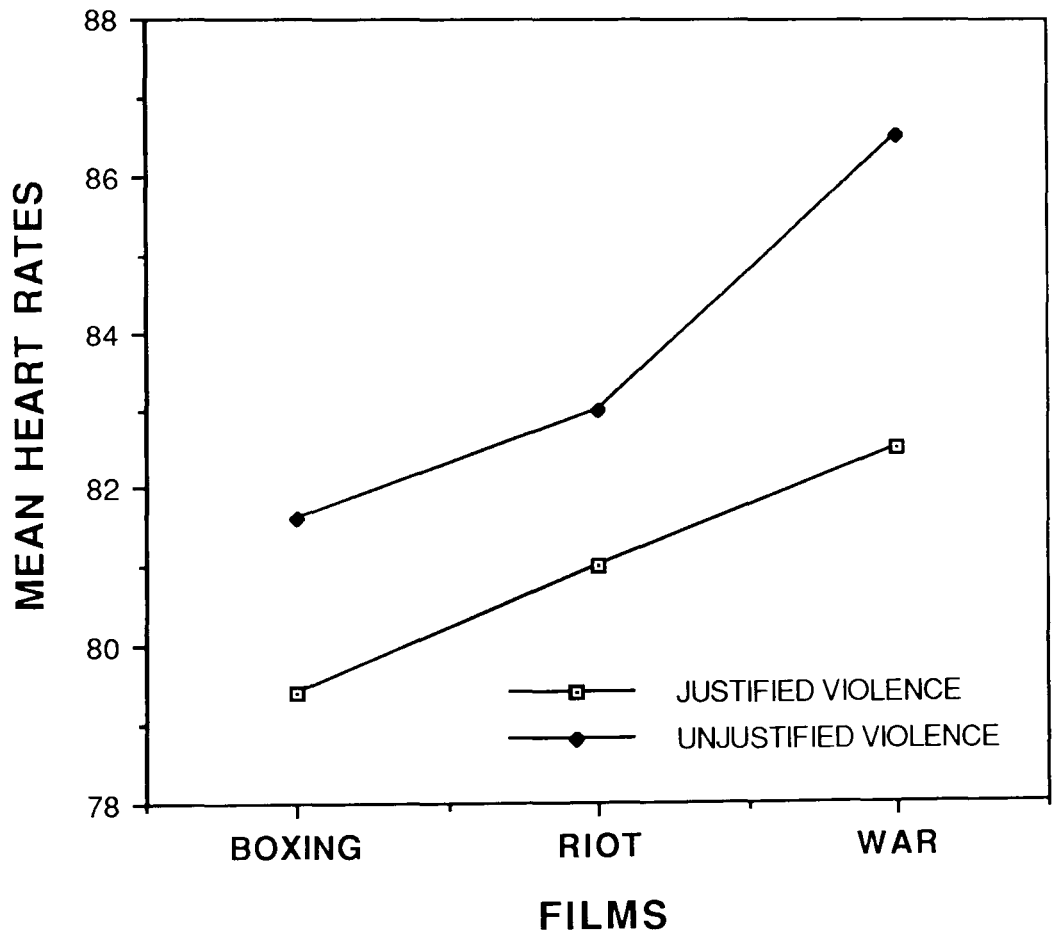


Figure 7.2. Mean Heart Rates Of All Participants Across The Three Experimental Films By Violence Justification.

As can be seen in Figure 7.2 mean heart rates appear to be greater for the unjustified violence film versions. Further analysis involving the effects of film violence justification on participants'

heart rates revealed that the differences suggested in Figure 7.2 were not significant (F(2,64)=2.08 P=0.133).

There was no significant interaction between film and violence justification. Heart rate increases to unjustified violence overall were greater (increase of 2 beats per minute) than increases to justified violence (increase of .75 beats per minute),(F(1,32)=5.35 P=0.027).

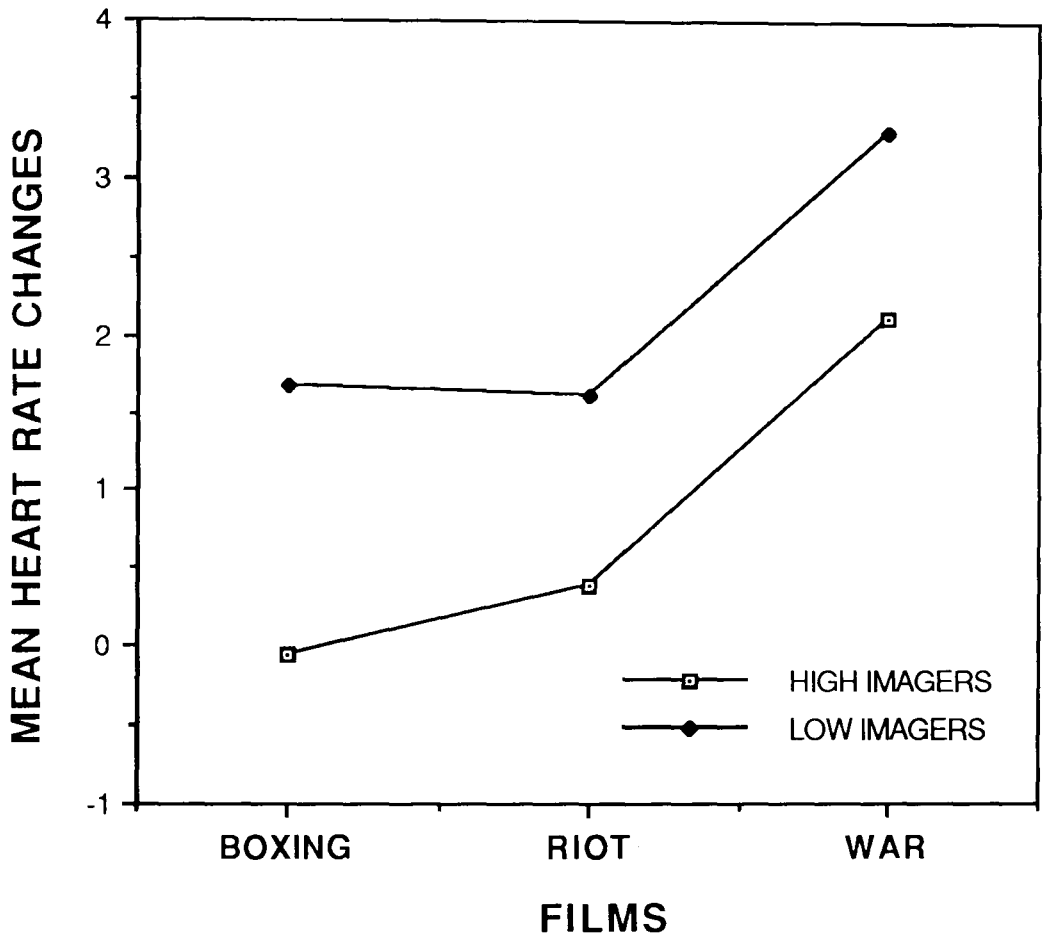


Figure 7.3 Mean Heart Rate Increases For Imagery Group From Baseline Across The Three Experimental Films.

From Figure 7.3 it can be seen that the low imagers have the greatest mean heart rate increases across the three experimental films compared to high and analysis confirmed an interaction between film and imagery group (F(2,64)=4.61 P=.013). Low imagers showed greater mean heart rate increases from baseline than did high imagers, especially for the boxing film (t(17)= 2.60 p=0.0068).

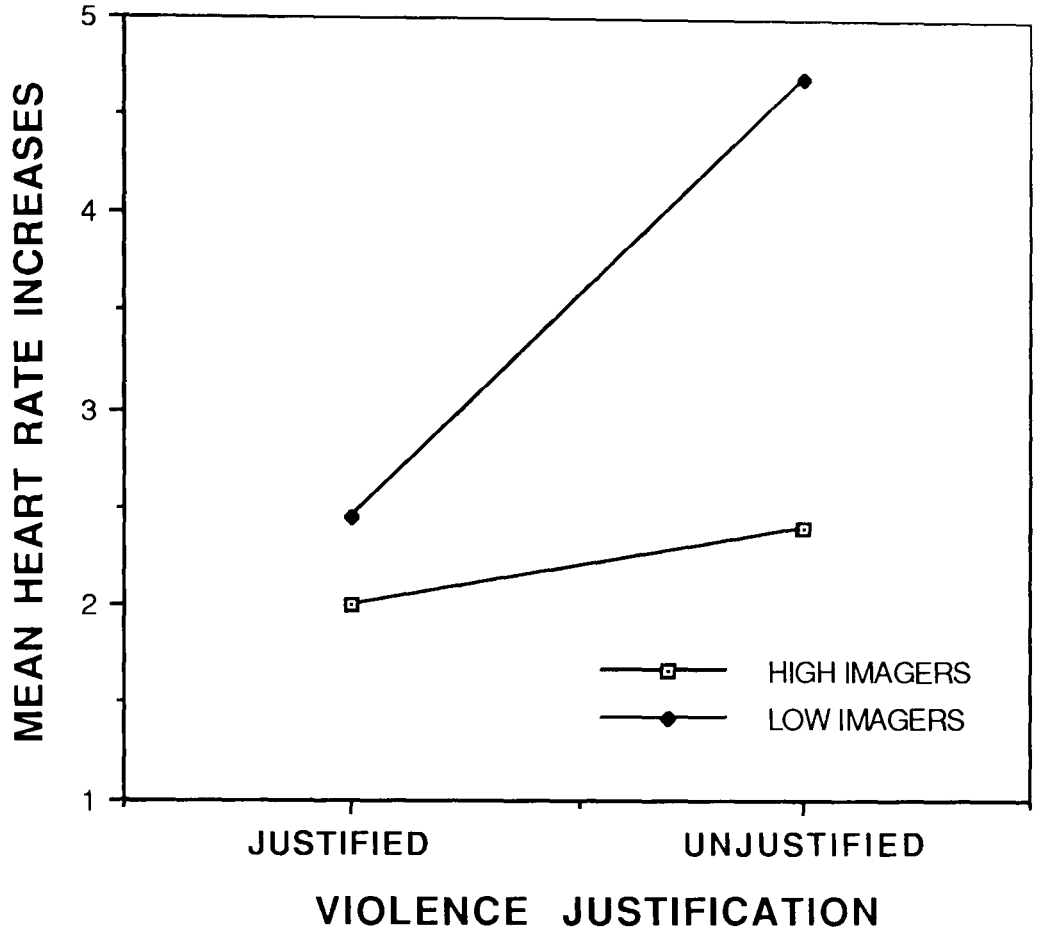


Figure 7.4. Mean Heart Rates For Imagery Groups Between Film Justification.

From Figure 7.4 it can be seen that while the low imagers produced the greatest mean heart rate increases overall it would also seem that, as predicted, they also produced the greatest increases under the unjustified violence condition. Yet despite these differences analysis revealed that there were no significant differences in imagers' mean heart rates according to the overall perception of justified and unjustified violence ($F(1,32)=1.7$ $P=0.202$). There was also no interaction between imagery group and violence justification ($F(1,32)=1.7$ $P=.202$).

Analysis of Participants' Mood ratings

Results from Multivariate repeated measures Analysis of Variance ((M)Anova) revealed that (using Wilks' Lamda) there was a main effect of film upon mood ratings overall ($F(2,27)=37.273$ $P=0.001$) and an interaction between film and overall negative and positive mood ratings ($F(2,29)=12.084$ $P=0.001$). Overall negative mood increases were larger than positive mood decreases. It was also evident that for each of the eight moods there was a main effect of film upon participants' ratings ($F(6,23)=3.619$ $P=0.011$). (M)Anova results also revealed that there was a three-way interaction between films overall negative and positive mood ratings and individual mood ratings ($F(6,23)= 3.859$ $P=0.008$). There were no significant interactions between moods, violence justification and imagery group ($F(3,26)=0.472$ $P=0.865$) nor between moods, violence justification and sex ($F(3,26)=0.861$ $P=0.249$).

Negative Mood Analysis

Overall Negative Analysis

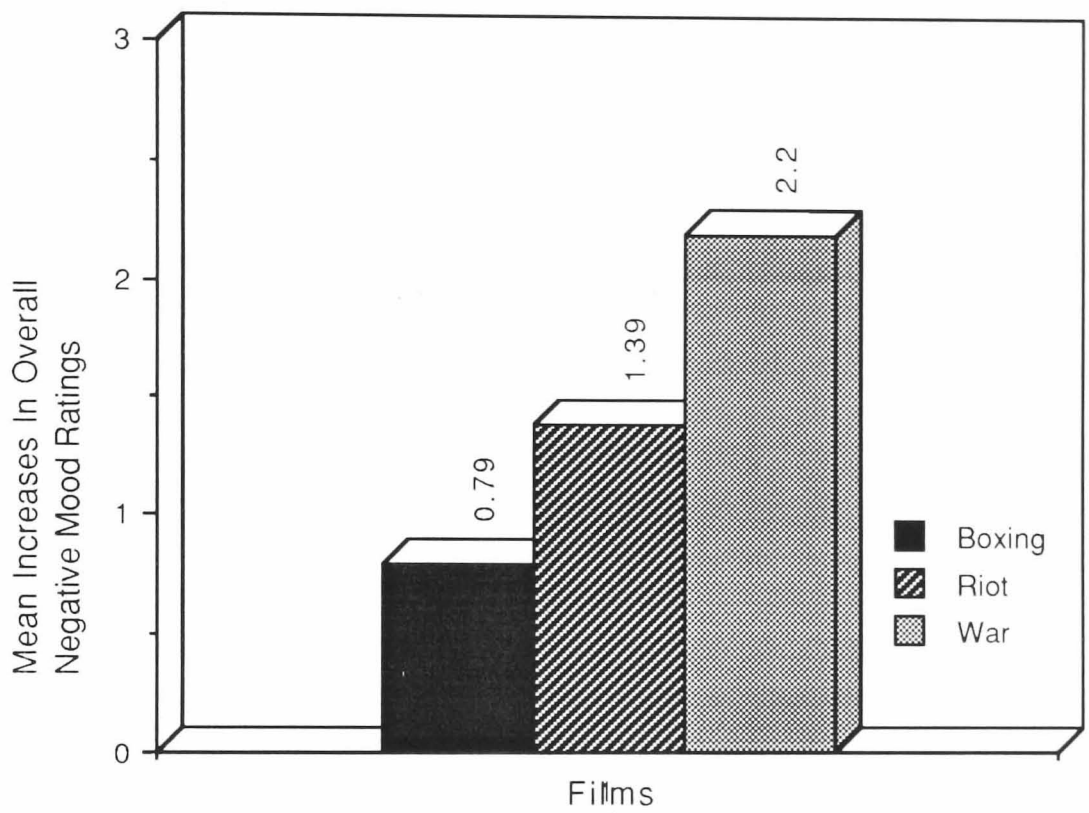


Figure 7.5 Mean Changes From Baseline Scores For Participants' Ratings Of Overall Negative Moods To The 3 Films.

As is evident in Figure 7.5 participants' overall negative mood ratings increased from baseline measures to all three films. There was a main effect of film on negative mood ratings ($F(2,105)=11.133$ $P=0.001$). Post hoc tests (Newman-Keuls) revealed that overall negative mood ratings were significantly different between the three films. The War film accounted for the largest increase in overall negative mood ratings and the Boxing film accounted for the least.

Angry

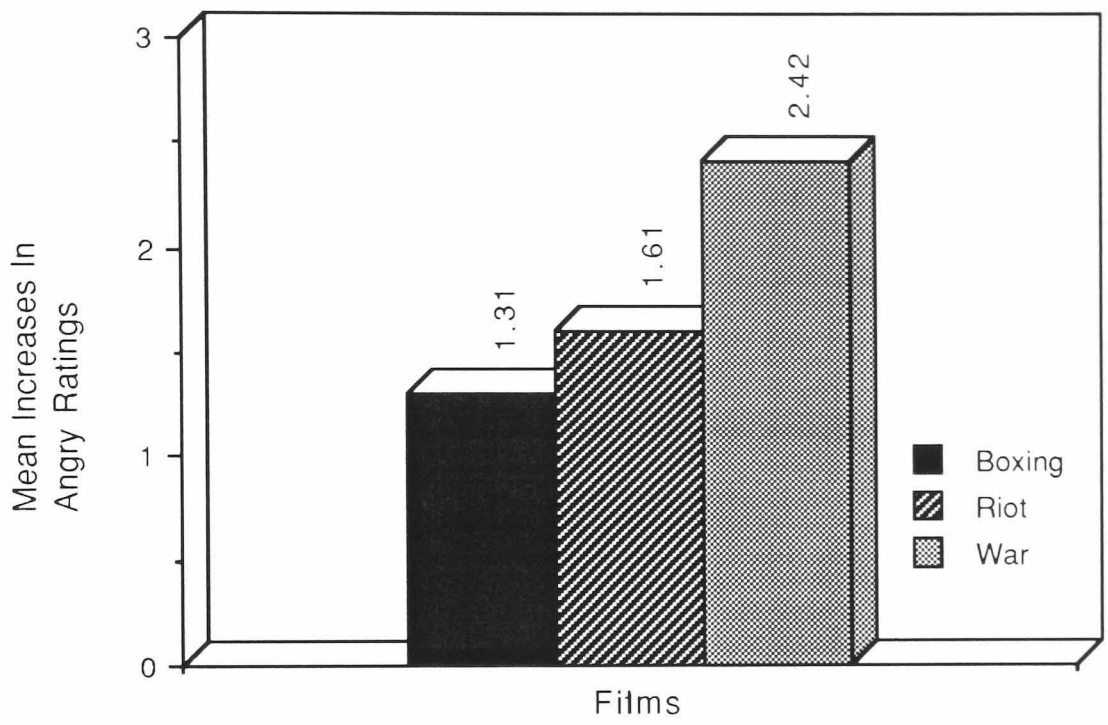


Figure 7.6: Mean Changes From Baseline Scores For Participants' Ratings Of How Angry They Perceived Themselves To Be To The 3 Films.

As can be clearly seen in Figure 7.7, the three films produced different levels of how angry participants rated themselves to be. Subsequent analysis of variance revealed that there was a main effect of film on anger ratings ($F(2,105)=3.98$ $P=0.022$). The War film accounted for the largest increases in this mood rating and the Boxing film the least .

Clutched Up

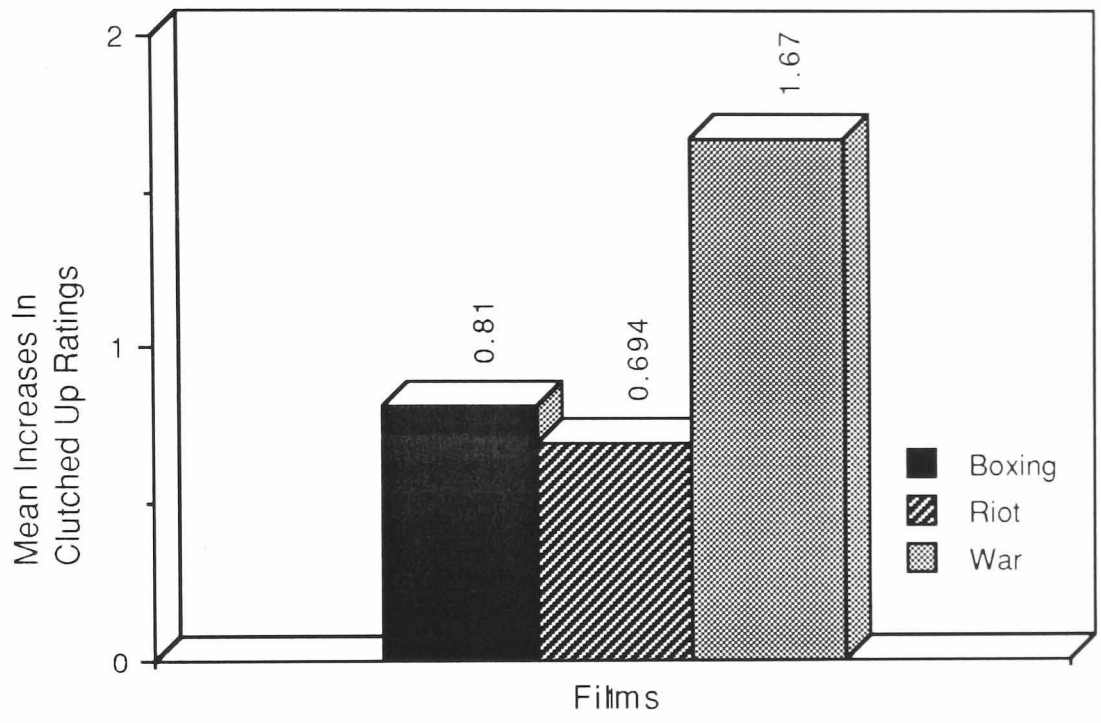


Figure 7.7: Mean Changes From Baseline Scores For Participants' Ratings Of How Clutched Up They Perceived Themselves To Be To The 3 Films.

Analysis of variance revealed that as with anger ratings, there was a main effect of film on participants' clutched up ratings ($F(2,105)=5.01$ $P=0.008$). Subsequent tests (Newman-Keuls) revealed that ratings for the War film were significantly different from the other two films.

Sad

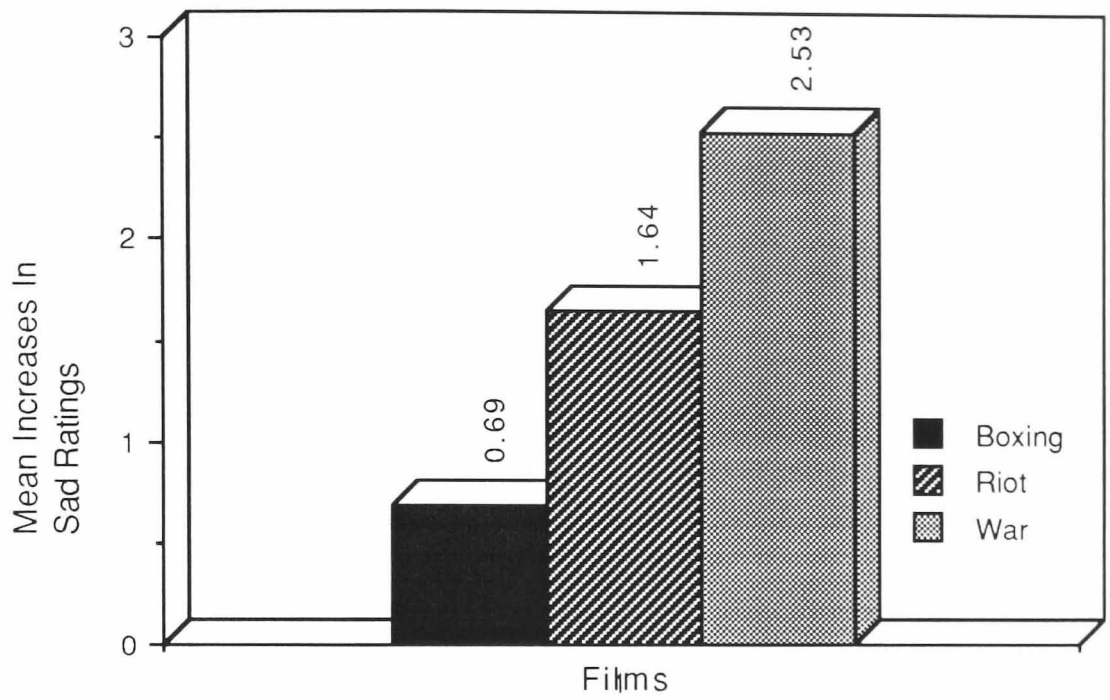


Figure 7.8: Mean Changes From Baseline Scores For Participants' Ratings Of How Sad They Perceived Themselves To Be To The 3 Films.

There was once again a main effect of film upon participants Sad ratings ($F(2,105)=8.566$ $P=0.001$). Further analysis revealed that ratings for the War film were significantly greater than for the other two films and that the Riot film rating was significantly greater than the ratings for the Boxing.

Sorry

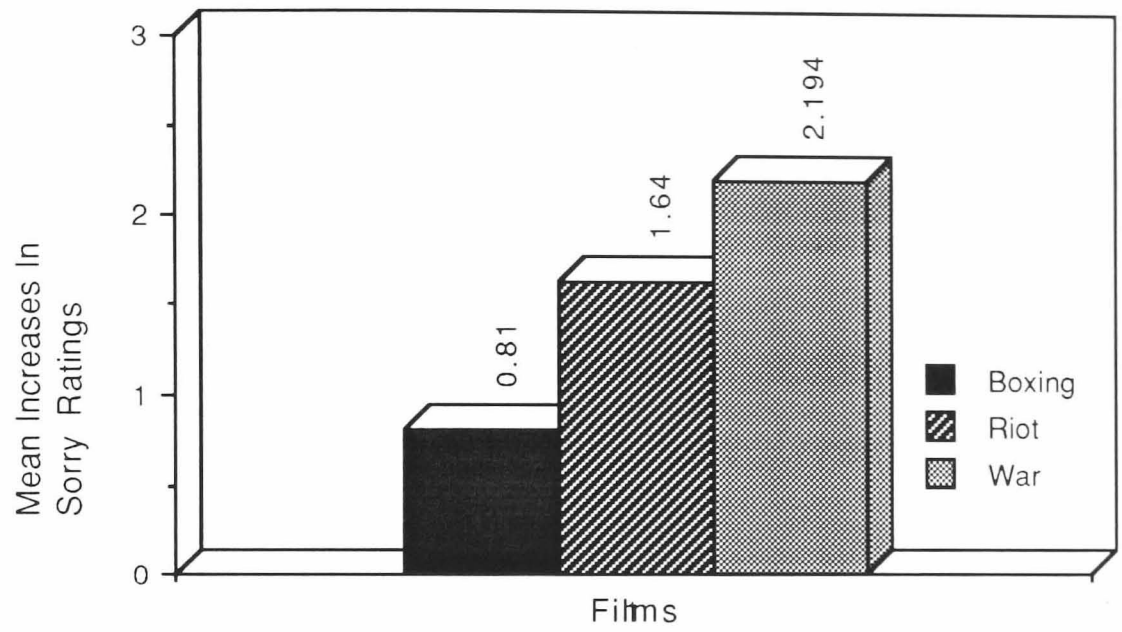


Figure 7.9: Mean Changes From Baseline Scores For Participants' Ratings Of How Sorry They Perceived Themselves To Be To The 3 Films.

There were again significant differences in sorry ratings between the three films ($F(2,105)=4.841$ $P=0.010$). Subsequent analysis revealed that ratings for both the War film and Riot film proved significantly different compared to the boxing film. That also while the War film had the highest ratings for participants 'Sorry' scores it was not significantly different to ratings achieved for the Riot film however.

Positive Mood Analysis

Overall Positive Mood Analysis

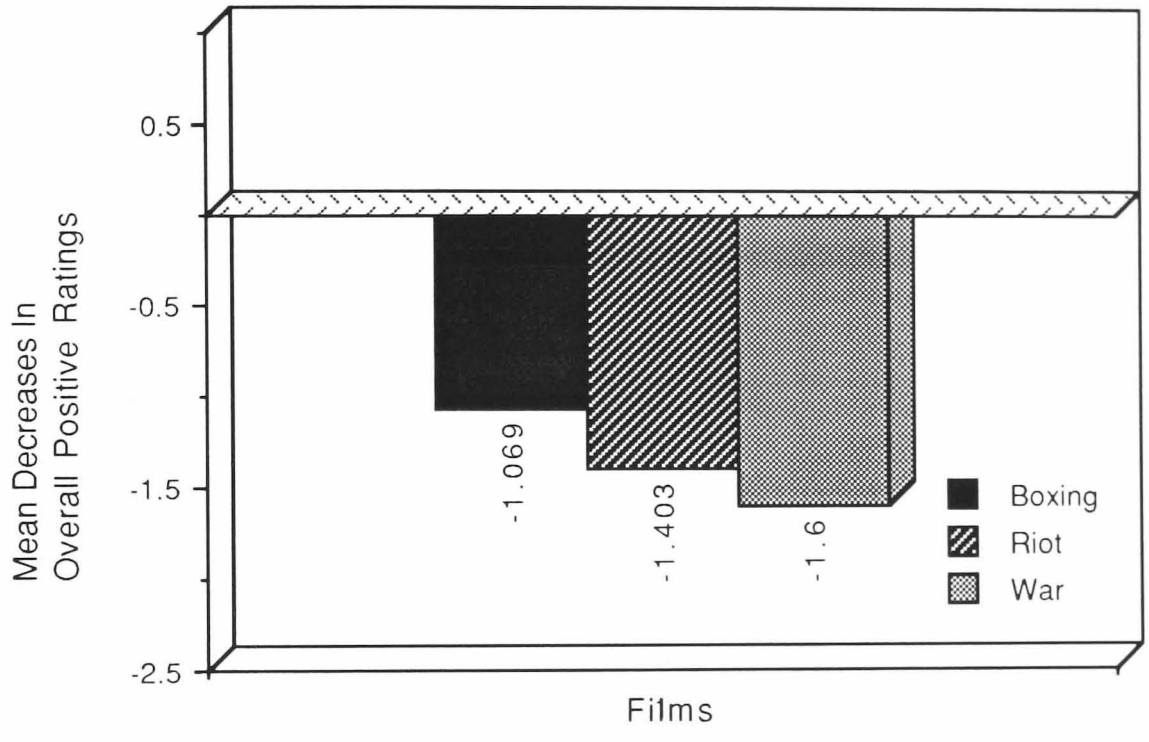


Figure 7.10. Mean Changes From Baseline Scores For Participants' Ratings Of Overall Positive Moods To The 3 Films.

It can be seen that in general participants' overall positive moods have decreased more to the War film and least to the Boxing film. However unlike the results obtained for overall negative mood changes, it is evident from Figure 7.10 that these differences are far smaller for positive mood change. Indeed analysis of variance confirmed that these differences in overall positive mood ratings across the three films proved to be non-significant ($F(2,105)=1.638$ $P=0.199$).

Participants' Questionnaire Analysis

As participants were asked to mark an 80mm line where 0mm= Very much so and 80mm= Not at all (see Appendix) all figures for these results are quoted in mm. The smaller the number therefore the stronger the attitude was experienced by the participant.

Rating\Film	War	Riot	Boxing
Film Violence	23.4	47.0	51.8
Film Realism	8.3	16.4	13.9
Film Vividness	21.7	41.3	42.1
Personal Interest	30.2	43.8	57.9
Personal Involvement	28.9	40.0	46.2

Table 7.1: Mean questionnaire responses by all participants across the three experimental films.

From Table 7.1 it is clearly evident that the War film was rated as the most violent of the three films and the Boxing film as the least violent. Analysis of variance revealed a main effect of film on violent ratings ($F(1,2)=13.446$ $P=0.001$) and subsequent post hoc tests (Newman-Keuls) revealed that though the ratings for the War film were significantly different than the ratings for the other two films, ratings of the Riot and Boxing films were not. Analysis of participants' ratings of film violence by imagery group revealed significant differences ($F(1,1)=12.127$ $P=0.001$) and a subsequent t test revealed that Low Imagers rated the films as being more violent than did High Imagers ($t=2.450$ $P=0.016$). Subsequent analysis also revealed that there were significant differences in film violence ratings between males and females ($F(1,1)=7.718$ $P=0.007$) and a t test revealed that males rated the films to be more violent than did females ($t=-2.450$ $P=0.016$).

For realism of the film events it can be seen that the War film is seen to be the most realistic and the Riot film as the least. However there were seen to be no significant effects of film on

realism ratings($F(1,2)=2.577$ $P=0.082$). Analysis also revealed that while there were no significant differences in film realism between imagery groups ($F(1,1)=0.388$ $P=0.535$) there were between males and females ($F(1,1)=5.973$ $P=0.017$). Males rated the films to be more real than females ($T=-2.910$ $P=0.004$).

For vividness it can be seen that the War film was clearly rated as that being the most vivid, rated twice as highly on this scale as the other two films, while the Boxing film was rated as being the least vivid, and these differences were indeed significant via analysis of variance results ($F(1,2)=7.026$ $P=0.002$). Post hoc testing revealed that the War film was rated as significantly more vivid than either of the other two films and that there were no significant differences between Riot and Boxing ratings. There were no significant differences between either imagery group ($F(1,1)=1.308$ $P=0.256$) or between males and females ($F(1,1)=3.254$ $P=0.075$) in film vividness ratings.

Participants rated the War film as the most interesting, while the Boxing film was seen to be the least interesting (see Table 7.1) and there was indeed a significant effect of film on interest ratings ($F(1,2)=14.788$ $P=0.001$). The War film was seen via post hoc testing to have evoked the greatest interest ratings, while there were no significant differences in this rating between the Riot and Boxing films. Further analysis revealed that although there were seen to be no significant differences between imagery groups ($F(1,1)=0.645$ $P=0.424$) there were significant differences between males and females ($F(1,1)=5.345$ $P=0.023$) in that males rated themselves significantly more interested in the films than did females ($t=-2.160$ $P=0.033$).

From Table 7.1 participants can be seen to have rated themselves as most involved with the War film and least involved with the Riot film and analysis confirmed a main effect of film on ratings ($F(1,2)=4.478$ $P=0.014$). The War film was rated as accounting for significantly greater participant involvement than either of the two other films, while there was no significant difference evident in involvement ratings between the Riot and Boxing films.

Further analysis revealed that there were no significant differences in involvement ratings between imagery group and film (F(1,1)=0.097 P=0.756). However there were significant differences evident between males and females (F(1,1)=7.963 P=0.006) where males rated themselves as more involved in the films than did females (t=-3.155 P=0.002).

Film type Rating	Justified War	Justified Riot	Justified Boxing	Unjust' War	Unjust' Riot	Unjust' Boxing
Film Violence	34.0	44.5	53.8	12.8	49.7	49.4
Film Realism	10.9	20.5	17.8	5.6	10.0	12.4
Film Vividness	24.0	47.1	45.9	19.4	38.3	35.5
Personal Interest	37.9	45.3	61.0	22.5	54.7	42.3
Personal Inv'ment	33.3	42.4	46.7	24.4	45.7	37.4

Table 7.2: Mean questionnaire responses by all participants to the three experimental films across violence justification.

It is evident from Table 7.2 that for two out of the three films, the War and Boxing films, it is the unjustified violence film version that is rated more highly on all of the five rating scales. Only for two out of the five ratings scales, realism and vividness, did the unjustified violence version produce higher ratings than the justified violence version. Subsequent analysis revealed however that there were no significant differences in any of the five ratings between the justified and unjustified conditions violence (F(1,1)=1.074 P=0.303); realism (F(1,1)=3.330 P=0.072); vividness (F(1,1)=1.014 P=0.317); personal interest (F(1,1)=2.883 P=0.093) and personal involvement (F(1,1)=0.543 P=0.463).

There were no significant differences evident between either the imagery groups or between males and females to the five ratings by violence justification.

	Vividness	Realism	Violence	Involved	Interest	Anger
Vividness						
Realism	.371**					
Violence	.516***	.256				
Involved	.377***	.397***	.412***			
Interest	.495***	.387***	.462***	..699***		
Anger	-.294*	-.222	-.273	-.278	-.254	

Key:

* = P<0.05 * * = P<0.01 * * * = P<0.001

Table 7.3: Matrix of Bonferroni correlation probabilities between the individual rating scales of the questionnaire.

	HRCH	ANGRY	SAD	SORRY	CLUTCH
HRCH	1.000				
ANGRY	-0.096	1.000			
SAD	-0.048	0.612	1.000		
SORRY	0.087	0.441	0.500	1.000	
CLUTCH	-0.057	0.446	0.376	0.298	1.000
AFFECT	0.207	-0.170	-0.140	-0.368	-0.156
OVERJ	0.088	-0.036	-0.141	-0.025	-0.411
KIND	0.073	-0.044	-0.247	-0.123	-0.053
PLEASED	0.277	-0.157	-0.136	-0.032	-0.385

	AFFECT	OVERJ	KIND	PLEASED
AFFECT	1.000			
OVERJ	0.449	1.000		
KIND	0.341	0.122	1.000	
PLEASED	0.333	0.485	0.327	1.000

Table 7.4: Correlation Matrix For All Mood Ratings And Heart Rate Changes For All Participants

From Table 7.4 there were significant correlations between Angry and Sad Ratings (.612) between Sad and Sorry ratings (.5), Angry and Cluthced Up ratings (.446) and also between Affectionate and Overjoyed mood ratings (.449). There were no significant correlations evident between mean heart rate increases and any of the mood ratings. Subsequent analysis involving differences in these correlations between imagery groups are reflected in Tables 7.5 and 7.6

	HRCH	ANGRY	SAD	SORRY	CLUTCH
HRCH	1.000				
ANGRY	-0.343	1.000			
SAD	-0.136	0.412	1.000		
SORRY	-0.006	0.379	0.510	1.000	
CLUTCH	0.157	0.212	0.225	0.015	1.000
AFFECT	0.281	-0.310	-0.364	-0.501	-0.028
OVERJ	0.064	0.064	-0.105	-0.015	-0.382
KIND	0.328	-0.320	-0.527	-0.311	0.225
PLEASED	0.474	0.120	0.186	-0.024	-0.235

	AFFECT	OVERJ	KIND	PLEASED
AFFECT	1.000			
OVERJ	0.590	1.000		
KIND	0.350	-0.095	1.000	
PLEASED	0.384	0.578	0.111	1.000

Table 7.5: Correlation Matrix For All Mood Ratings And Heart Rate Changes For High Imagers.

There were few significant correlations involving high imagers. Those that were evident were between Sad and Sorry ratings (.51) and a negative correlation between Sorry and Affectionate ratings. As with overall participants there were no significant correlations involving high imagers mean heart rate increases.

	HRCH	ANGRY	SAD	SORRY	CLUTCH
HRCH	1.000				
ANGRY	-0.066	1.000			
SAD	-0.024	0.828	1.000		
SORRY	-0.099	0.504	0.513	1.000	
CLUTCH	-0.219	0.558	0.525	0.521	1.000
AFFECT	0.398	-0.016	0.221	-0.102	-0.264
OVERJ	0.165	-0.119	-0.188	-0.022	-0.458
KIND	-0.226	0.190	0.148	0.059	-0.280
PLEASED	0.152	-0.308	-0.394	-0.111	-0.461

	AFFECT	OVERJ	KIND	PLEASED
AFFECT	1.000			
OVERJ	0.250	1.000		
KIND	0.381	0.421	1.000	
PLEASED	0.389	0.475	0.500	1.000

Table 7.6: Correlation Matrix For All Mood Ratings And Heart Rate Changes For Low Imagers.

Of the correlations depicted above there were several that reached statistical significance. Low imagers Angry ratings correlated highly with their Sad ratings (.828), while their Sad and Sorry ratings were also significantly correlated (.525) as were Sorry and Clutched Up mood ratings (.521). There were no significant correlations between low imagers mean heart rate increases and their mood ratings.

It was evident that low Imagers' angry ratings increased by 1.9 while their heart rates increased by a mean 3.7 beats per minute, while in comparison the average mean increase for angry ratings for high imagers was 1.7 and their mean heart rate increase was 1.1 beat per minute.

Discussion

Analysis of participants' heart rates generally supported the experimental predictions. Participants' heart rates increased from baseline measures for all three films. Considered in isolation this initial analysis supports the argument that the films all produced an orienting response, a non-specific effect of stimulation. However the fact that subsequent analysis revealed that different heart rate increases in response to the three films were significant suggests that there is something more occurring than just 'physiological orientation'. As predicted it was the Real war film that produced the greatest, and the Boxing film the least increases in heart rates. Thus while all three films produced heart rate increases as would be expected through the orienting response, differences in these increases between films mirrored the films' novelty ratings: the War film was rated as highly novel also produced the greatest heart rate increase, while the Boxing film, rated lowest in novelty, evoked the least increase. This suggests that the degree of event novelty could also influence physiological reactivity. While orienting responses may occur for any violent film as with any other stimulant, how novel that stimulant is perceived also effects the size of this undifferentiated physiological arousal.

Analysis involving film violence justification also suggests that physiological activity is dependent upon factors over and above orientation effects alone. As can be seen from Figure 7.2, participants' heart rate increases were higher in the unjustified violence condition than in the justified condition. It is also interesting to note that the heart rate increases also correspond to the degree of novelty with which the films have been rated. As predicted it is the Real War film interpreted as containing unjustified violence which produced the greatest increases in participants' heart rate. Analysis revealed that the differences in heart rate increases between the two violence justification conditions were significant in that as predicted the unjustified violence accounted for the greatest heart rate increases from baseline. These results suggest that physiological reactivity in

response to screen violence is susceptible to factors other than orientation.

Heart rate activity between imagery groups also proved interesting. It was evident that while low imagers' heart rates increased from baseline to all three films, the high imagers' heart rates only increased from baseline to the War and Riot films. From Figure 7.4 it is evident that both imagery groups' heart rate increases matched the predicted pattern for film novelty. In both groups the War film accounted for the greatest increases and the Boxing film the least increases. For violence justification it was evident that while not significant, differences in heart rate increases between justification conditions were more pronounced in the low imagery group (see Figure 7.5). This reflects the results of the other studies (see Chapters 4 and 6) where it was evident that low imagers' heart rates showed a greater increase to real violence than those of high imagers. Perhaps the fact that the violence is unjustified reinforces the harshness of the images perceived by the low imager by adding strong negative cognitive interpretationa of the events (see Appendix E). The fact also that the violence depicted was real amplified this effect and together these factors generated a strong stimulus which resulted in relatively high increases in heart rate activity of 5-6 bpm on average. In contrast the high imager faced with the same harsh images is in a better position for he/she is able to generate other visual imagers that might act as a buffer to these negative visual stimuli. These differences in imagers' heart rate responses again support the conclusion that physiological reactivity is not responsive to orientation alone. Other stimulus features also seem to influence physiological reactivity.

Overall the heart rate data suggests that physiological arousal as defined by Reisenzein (1983) is an integral part of observing and responding to aggression. The fact that variable such as film type and justification have the ability to change levels of physiology as well as mood experience points strongly to the hypothesisthat it is a substrate of aggression.

Analysis of participants' mood ratings of the three films reflected the same pattern as the heart rate changes. Participants' ratings of anger were highest for the War film and lowest for the Boxing film. From Figure 7.6 it is evident that participants' overall negative mood ratings were most elevated for the War film and least elevated for the Boxing film. It was also evident that the unjustified violence film versions in comparison to the justified violence films produced the greatest increases in participants' overall negative mood ratings. In comparison participants' overall positive mood ratings were seen to be most decreased to the War film and least for the Boxing film. It was also evident that overall positive mood ratings were most depressed for the films in the unjustified violence conditions than for those same films in the justified violence condition.

The fact that participants' negative mood rating patterns follow a similar pattern as that observed for the heart rate responses suggests that a relationship between physiology and cognition exists. Reisenzein's (1983) critical examination of the Schachter - Singer model of emotion suggested that existing data at best only supported " a rather attenuated version" of the theory - that was that arousal feedback can have an intensifying effect on emotional states. The correlation data from this study (Tables 7.4-7.6) do not seem to support this relationship. Despite this films that produced the greatest increases in heart rates were those that also produced the greatest increases in negative mood ratings and greatest reductions in overall positive mood. More specifically the unjustified violence War film which produced the greatest heart rate increases also resulted in the greatest increases in negative mood and greatest decreases in positive mood.

It is interesting to note that the events of the War film were rated as the most violent, vivid, real, and interesting and produced the greatest amount of involvement. In terms of violence justification it was the unjustified War film condition that generated the highest scale. Thus the War film produced the greatest increases in heart rates and was responsible for the highest questionnaire rating scores. Reisenzein (1983) states that

an emotion is a result of arousal and two cognitions: "one that characterizes the situation in an emotional way " (threat from the perceived violence), "and a second (a causal belief) that connects the emotional cognition (the cause) with the arousal (the effect)." This statement reflects the results revealed in this study. The unjustified War condition produced the greatest increases in heart rate (arousal) and produced the highest questionnaire ratings (cognition).

However the fact that the participants were pre-informed of the context of the film and that this information conveyed the type of justification for the violence suggests that cognitive processe are influencing physiological reactivity. From such pre-film information participants were able to form some expectancies concerning the violence before veiwing it and this could have resulted in a preparatory response.

In summary therefore it is evident that participants' show increases in physiological arousal in response to film violence. Participants were aware of the motives behind the violence before watching it and thus formed preliminary expectancies about it. Variables that have been reported to change levels of behavioural aggression in previous studies (real versus fictional and unjustified vs unjustified) have had equivalent effects on physiology. Thus the fact that such variables produced differing increases in participants heart rates suggests that physiology is a substrate of aggression. The film depicting the most novel violent events (an execution) was the one which yielded the greatest increases in heart rates, while the boxing film, which was rated as containing the least novel violent events, produced the least increases in participants heart rates. Thus novelty might also be involved in determining the magnitude of arousal. The violence that produced the greatest increase in arousal was that which was appraised as being unjustified and rated the most violent and vivid and also evoked the greatest increases in negative mood and decreases in positive mood. These findings suggest that arousal may have an intensifying effect on emotional states as suggested by Reisenzein (1983).

Chapter 8

Discussion and Conclusions

Discussion and Conclusions

The present experimental studies have attempted to investigate what roles, if any, viewers' physiological and mood states play in the observation of screen violence. While it has been seen that audiences are very rarely moved to actual behavioural imitation, they certainly do experience different levels of emotional arousal. Rather than causing immediate outbreaks of aggressive responding, such increases in emotional arousal could act as primers, increasing the chances of aggressive responding only in subsequent frustrating and/or threatening situations should such situations arise. If this is the case, then it is important to investigate whether emotional arousal is influenced by other factors (more specifically imagery ability in the present studies) and/or influenced by the context and/or type of violence portrayed.

Thus, how viewers perceive and process violence as well as how they perceive they feel the violence has affected them, are important factors in how they react to it. Thus it appears that physiological activity, mood experience and cognitive interpretation are important factors in determining how people respond to screen violence. Together they contribute to overall emotional experience.

The results from these studies have yielded important insights into two important relationships that contribute to emotional experience in response to screen violence: (i) the relationship between participants' physiological responses and the context of the violence; (ii) the relationship between physiological responses and the experience of mood states. The role of participants' cognitive processes have has been considered throughout these investigations as has the potential role of imagery ability.

The increases in physiological arousal to violent films throughout this study even though significant have been relatively small. This could be explained by the fact that participants' physiological

responses depend upon conflicting influences. On the one hand they are activated by the graphic scenes of aggression and violence but, on the other, there is evidence that heart rate tends to decrease when people are attending visually or auditorily to presented stimuli, the two main components of television (Lacey, 1959; Lang, 1994; Lang, Bradley, & Cuthbert, 1990; Vrana and Lang, 1990). The small physiological changes seen in this series of studies could also be partly due to socialised inhibition. We are all aware that aggressive behaviour is socially unacceptable and as a result most of us have been socialised into repressing any visible our aggressive behaviours. This repression of aggression also has implications for our physiological activity. As Lazarus (1991) suggests: "Our bodies also respond to much else as well, for example, inhibition and controlled timing, which are part of the coping process, and complex changing demands of the encounter". Also as physiology was, in the case of these studies, a response to screen violence, the fact then that there were significant increases in physiological activity indicates that participants were more attentive to the actual violence portrayed rather than how it was presented.

Increases in 'physiological arousal' have been identified as an underlying factor in aggression following film violence (Zillman, 1971; Berkowitz, Cochran and Embree, 1981; and Thomas, 1982). The term physiological arousal is a very broad term. Previous studies of screen violence which have employed physiological indices have been small in number and, many are flawed by the fact that they have only used physiological responses in non-continious measures. As a result little could be concluded regarding the precise nature of physiological activity in relation to media violence.

From the results obtained from this set of studies, it would appear that physiological arousal is a substrate of aggression. Features of screen violence that have been seen to change viewers' levels of behavioural aggression in previous research (real vs fictitious violence and justified vs unjustified violence) have also been seen via this present series of studies to have equivalent effects on

viewers' physiology. In Studies 1 and 3 there were significant differences in participants' heart rates along the real-fictitious dimension. Heart rates were more elevated to the real violence as opposed to fictitious violence. These results are also supportive of previous studies (Berkowitz & Alioto, 1973; Diener and Woody, 1981; Chaney, 1970; Feshbach, 1972; Geen, 1975; Geen and Rakosky,1973, & Meyer, 1970).

The distinction between real and fictitious violence at both a behavioural and physiological level could be explained by 'resonance theory' : "When what people see on television is most congruent with everyday reality (or even perceived reality), the combination may result in a coherent and powerful 'double-dose of the television message" (Gerbner, Gross, Morgan and Signorielli, 1986). Indeed Frost and Stauffer (1987) have suggested this 'double-dose' may result in increased physiological activity.

Yet the results of the present studies have also shown that is not only perceived reality of the violence that has comparable effects between physiology and behavioural aggression. Distinctions between the types of violence portrayed were also seen to have equivalent effects on participants' physiology. There were significant differences in participants' heart rates and EDA levels between the War and Boxing films in Study 1 and between different film types in both Study 3 and Study 4. These results have important implications. They suggest that screen violence does not have a general fixed effect but results in specific responses. Thus different types of film/television violence have the potential to evoke differences in viewer responses. From the results of the present studies it is clearly evident that viewers are most affected by War footage. Perhaps this is because War is the epitome of aggression and violence. It portrays such negative behaviour on a wide organised scale, not just individuals fighting one another but whole nations locked in life or death struggles. If these results are applicable to the general public, then they are a cause for concern. Recent wars (the Gulf and Yugoslavian) have received, high amounts of news coverage and the increasing

improvements in satellite transmissions have resulted in high accessibility to such graphic images in a great many homes.

The observation that different types of screen violence produce highly variable levels of reactivity in participants' physiology would suggest that familiarity/novelty may be a strong factor in desensitization to such material. It was seen in Study 4 that increases in heart rate matched the novelty ratings of the three films. Thus the War film, which was rated as high in novelty, was also responsible for the largest increase in participants' heart rates, while, in comparison, the Boxing film (rated as lowest in novelty) produced the smallest increase from baseline measurements. Griffiths and Schuckford (1989) argue that desensitization occurs when the stimulus no longer remains important, stimulating or novel i.e. the affective elements have habituated producing an insufficient orienting response. More specifically, in terms of viewing television violence, desensitization occurs when expectations (formed via past experience) determine the subsequent behavioural response by failing to initiate psychophysiological responses to the television violence. Thus Cline, Croft and Courrier (1973) reported that changes in EDA and blood volume pulse amplitude were lower for boys from a heavy violence viewing group who watched a violent boxing match than for those boys who came from a low violence viewing group. The results from the present studies support the possible existence of desensitization to film violence. Throughout these studies, war films have accounted for the greatest increase in participants' physiology compared to boxing films. In terms of desensitization this is not surprising. Boxing is still, arguably, a sport and an occupation and as such is regularly available as entertainment. Actual war scenes are available infrequently during which there is relatively short exposure, one or two minutes compared to 30-60- minutes for boxing. The fact also that boxing is a sport between willing opponents cushions the viewer from the violence it portrays. The viewer is made aware that the aggression stems from a sporting contest with rules and conditions applicable to both fighters and a referee. This is not so for war. The images it portrays are not bound by clear or enforcable rules

and regulations nor are the contenders fighting for titles. War footage depicts images of life and death struggles. Thus viewers have more potential to desensitize to boxing footage than to images of war and less reason to take a moral position.

Participants' reactions were also susceptible to the justifiability of screen violence. This reinforces the view that physiology is sensitive to the same factors which result in differentiated behavioural aggression. Similarly it has been reported that unjustified violence elicits greater increases in subsequent aggressive responding (Berkowitz and Geen, 1967; Geen, 1976; Rule and Nesdale, 1976). It has also been reported that an act of 'vengeance' may be construed as morally justified by many participants and has been reported to elicit more aggressive responding from an observer than the same violence attributed to other motives (Carpenter and Darley, 1978; Geen and Stonner, 1972). Yet with these studies participants have been provoked or predisposed to an aggressive state prior to experimentation. In the present studies participants were not provoked pre-experimentally and yet they experienced significantly more elevated heart rates to those films interpreted as depicting unjustified violence.

In the last study there were significant differences in participants' heart rates between screen violence conditions which were perceived as justified and unjustified despite the fact that the violence was otherwise identical across conditions. It was seen that violence depicted as being unjust resulted in significantly larger increases in heart rates. This suggests that viewers' cognitions could have a bi-directional relationship with physiology. Participants in the first study were informed what the film would be about and they were also told whether the violence was just or unjust. These pre-film cognitions could have influenced subsequent physiological activity via expectations. Such that they could have formulated an intense negative interpretation of the unjustified war film, for example, and this could have acted to amplify the resulting physiological activity. Overall these results reveal that participants' physiological

reactivity is as susceptible to the sane variables, as behavioural aggression in response to different elements of film violence context. Thus differential physiological responses were evident between different film reality and violence justification conditions suggesting that physiology is an underlying component of aggression. If this is true then aggressive responses and emotional experience do not stem from cognitive interpretation alone but also from underlying physiological processes.

The fact that different types of film violence produce significantly different levels of physiological arousal suggests that participants' physiology is perhaps reactive to specific factors influencing orientation. If participants' physiological responses to the experimental films were due to the orientation reflex alone then there would be little differences evident between films. The fact that the different films do produce different physiological responses indicates that novelty of the events depicted is particularly influential in the intensity of any response that might occur. As familiarity is a major contributor to desensitization it would seem that physiological responses are in turn regulated by individual desensitization to film violence. Goranson (1970) maintains that desensitization results in decreases in physiological activity and that frequent portrayals of violence in the media may result in gradual blunting of emotional responses to subsequent displays of aggression. In other words a person's physiological responses will become more and more subdued the more he/she is exposed to a particular example of media violence. Only when newer forms of violence are observed will physiological responding increase.

Results involving visual imagery ability and physiological activity support the suggestion that physiology is itself susceptible to individual difference factors. It was predicted that participants with low visual imagery would be more reactive to realistic as opposed to fictitious violence. Visual imagery ability was seen to produce differing physiological activity in Studies 1,3 and 4. It was evident that those participants who were classified as having low visual imagery ability were those whose heart rates increased

significantly more to the real films. In Study 1 while the high visual imagers' heart rates remained consistent during the viewing of real and fictitious screen violence, the low imagers' heart rates increased for the real screen violence and declined for the fictitious screen violence. In Study 3 it was also evident that low imagers' heart rates were significantly more elevated to real screen violence than heart rates for high imagers. Also when asked to write down the first film that they could recall, low imagers recalled real screen violence more frequently than fictitious screen violence. In the last study it was the low imagers once again who showed the greater increases in their heart rates for unjustified real violence.

Viewers with low imagery ability faced with sharp and vivid images of realistic screen violence may be unable to cope with such stark images. Gerbner et al (1980) have already suggested that realistic violence could result in a double-dose effect and that this would in turn lead to increases in physiological activity. A similar effect could be true for low visual imagers. Having poor visual imagery ability they are impeded in the generation of independent sharp images in their "mind's eye". They have had little exposure to vivid images, being unable to generate them independently without the aid of already formulated images such as those provided by the television. The high imagers, on the other hand, do not suffer from this disadvantage, being able to generate vivid images independently of the television. Thus because they are able to create their own vivid images they have been able to habituate to them and thus have become desensitized to them. The low visual imagery viewer requires actual exposure to vivid images, and scenes of the screen violence to become habituated. Unused to the sharp and dramatic images that fills their "mind's eye", the low imager feels more threatened by them and this activates heightened physiological arousal.

It was also evident that high imagers showed greater increases in their physiological activity to fictitious films compared to low imagers. Research on imagery and cognition has already highlighted an effect that could be of relevance to the role of

imagery in relation to media violence. It has already been observed that subjects with high imagery capacities tend to incorporate imaginary events as actually perceived more than subjects with lesser imaginable capacities (Johnson et al, 1979). As such the high imager could by his/her visual imagery skills transpose fictitious events into plausible real life situations within their 'minds eye'. In contrast the low imager lacks the skills to do this. This could account for the differences in their physiological reactivity to the fictitious films.

Though there were no significant differences in mood ratings between imagery groups, generally low imagers' negative mood ratings were slightly more elevated to the real films and those that were unjustified than those of the high imager. This again suggests that increases in physiology could act to amplify subsequent emotional responses. The low imagers have the greatest heart rate increases to real and unjustified violence and have subsequently shown marginally greater negative mood ratings than high imagers. The correlational data from Studies 3 and 4, involving mean heart rate increases and mood rating increases, revealed that there were no significant correlations within both imagery groups between these two measures. However consideration of these correlations between the two imagery groups is more interesting. For example correlations between angry mood rating increases and mean heart rate increases are stronger for low imagers than for high imagers. In both these studies the low imagers' anger ratings and heart rate increases were greater than were those for the high imagers'.

Thus imagery ability appears to influence physiological activity which in turn could serve to set the intensity of the resulting emotional experience. In this respect visual imagery ability could play an important function in the initial stages of physiological activation. Yet this is not the first time that viewers' characteristics have been linked to differential responses to media violence. Wober (1988) reported that it seemed to be the "more timid people, lower on sensation seeking, higher on external locus of control, who view more action adventure". While the majority

of research to date has been directed at investigating viewing violence as the independent variable, the results involving imagery ability encourages research investigating it as a dependent variable.

The fact that there were no significant differences between males and females in physiological activity confirm the of results reported in previous studies (Bryant and Zillman, 1984; Frost and Stauffer,1987, & Miller, 1985). However results concerning sex and mood ratings were more interesting. It was consistently seen that there were no differences in mood rating increases between males and females. This, linked with the observation in Study 4 that males rated the films as being significantly more violent than females, is particularly interesting. The literature has more usually reported that women are more sensitive to men. Perhaps females' attitudes are hardening. While crime is declining on average, violent crime is on the increase, particularly against women. Perhaps women are becoming desensitized to the constant media depictions of violence.

Shachter and Singer (1962) and Reisenzein (1983) have suggested that feedback (whether at a conscious or subconscious level) of physiological activity can have an intensifying effect on subsequent emotional states and that this arousal-emotion relationship is mediated or modified in part by causal attributions regarding the source of the arousal. Indeed more recently Lang, Greenwald, Bradley, & Hamm (1993) showed participants 21 evocative pictures (e.g., happy babies, grisly mutations, erotica, graphic violence). They reported that the pictures that prompted the largest average physiological reactions were those for which the strongest feelings were subsequently reported. Tannenbaum and Zillman (1975) have suggested that it is the increments in emotional arousal that serve as the primary basis for the aggressive film effect . Geen and Thomas (1986) also suggested that increased arousal raises a person's overall activity level and this in turn increases the likelihood of any response.

It was predicted that the films that produced the largest increases in physiology would also account for the largest reported increases in negative mood ratings. The results from the present studies seem to partially reflect this 'intensifying' effect of physiology. Although there were no significant correlations between heart rate and mood rating increases as reported in Chapters 6 and 7, other elements of the overall results seem more supportive of this intensifying relationship. It is evident from Studies 1,3 and 4 that those films producing the greatest increases in heart rate subsequently were also those which evoked the largest increases in overall negative mood ratings. More specifically it can be seen that the real War films all accounted for the largest increases in participants' physiology and were also responsible for the most prominent increases in negative mood ratings. Thus emotion experience could be reliant upon physiological feedback for visceral quality and intensity. Nisbett and Schacter (1966) suggest that cognitive or situational factors (a violent film) trigger physiological processes and the triggering stimulus usually imposes the label we attach to our resultive feelings. The results of the present studies indicate that physiological activity plays a vital role in the observation of media violence and there is a need for further examination in this area.

Schachter and Singer (1962) maintain that physiological differences between emotions, if they do exist, are too subtle to be of psychological significance. Arousal per se is conceived of as affectively neutral (Schachter & Singer 1979). Thus while physiological activation might provide cues for the intensity of any subsequent emotional response, it is the role of the cognitive interpreter to infer the most appropriate emotional experience. Schachter and Singer (1962) emphasize that physiological arousal (defined as emotionally non-specific) determines only the intensity and not the quality of an emotional state. "It is the cognition that determines which emotion, if any, will be experienced " (Reisenzein, 1983). Reizenzien goes further to suggest that cognition in relation to emotional experience determines the subjective interpretation of a situation or event as being "dangerous", "hopeless" or "funny". This is applicable to the

interpretation of media violence. Such active interpretation on the part of the viewer supports earlier suggestions as to the role of the viewer in screen violence effects. Gunter (1983) suggested that in most of the research to date people have been considered passive recipients of the mass media, and that they should be seen instead as active selectors and interpreters of what they watch on the screen.

It has been seen that in Studies 2, 3 and 4 participants have reported the greatest increases in feelings of anger out of the 8 moods assessed. This mood is perhaps the most appropriate in relation to the assessment of media violence. Participants have watched characters engage in acts of violence and aggression. It is also evident that participants' overall negative mood ratings have increased more than overall positive ratings have decreased. This suggests that participants' cognitive processes search for the most appropriate emotional response. Screen violence is associated with negative behavior and negative moods are more appropriate than positive moods. This is given further credence from the results of Study 2. Here the Cartoon was the only film that produced increases in both overall positive and negative mood ratings. Yet on reflection in terms of cognitive assessment this is understandable. Cartoons depicts both violence and humour and thus require both positive and negative evaluation.

The assessment of mood responses in relation to screen violence would seem a critical issue. In the vast majority of cases, the viewing public, will be more susceptible to mood change following exposure to media violence than they will be to engage in any overt, physical aggressive acts. Those people whose 'angry' mood levels are boosted by media violence could well be primed for a subsequent hostile response should the necessary conditions prevail. Thus people who experience increases in 'angry' mood experience if faced with a subsequent frustrating or threatening situation may be more predisposed to respond aggressively. Thomas (1982) states that "...provocation and opportunity for retaliation must occur in a fairly narrowly circumscribed time

interval following viewing". A viewer's emotional negativity might enhance the likelihood of negative actions

The impact of negative mood increases as a result of media aggression could also have other implications. Excitation of aggression-related moods could, through association, result in other spiteful acts such as verbal insults, heightened criticism, and irritability. Berkowitz (1986) hypothesized that aggressive thoughts and emotions are 'primed' by the observation of television violence. It has been proposed that television violence may prime other aggressive ideas and emotions via "semantically strengthened pathways" (Josephson, 1987). Turner and Layton (1976) gave three groups of male participants word lists to memorise . One group received easy aggressive words ('gun', 'punch' etc.), the second received less easy aggressive words ('punishment', 'mutilation' etc.) and the third group received neutral words. Each participant was then asked to punish another participant for mistakes on a learning task. Those in the former group (easy aggressive lists) were subsequently more punitive. This 'priming' effect could also be true for viewers' mood experiences. That is viewers who experience increases in anger could also experience increases in the intensity of other negative moods such as sadness, impatience or anxiety. Such increases in mood intensity could motivate the occurrence of subsequent aggressive action. Bushman and Geen (1990) told their participants to write down the thoughts that came to mind as they watched a brief film scene. The more violent the film scene the more aggressive ideas they reported. It was also seen that the most violent film also had the strongest increase in anger-related feelings (compared to how they felt at the start of the experiment). As Berkowitz comments, " the priming experience then-in this case, witnessing a violent movie-can generate emotional reactions as well as particular thoughts". Langley, O'Neal, Craig and Yost (1992) reported that participants who were 'primed' by being given an aggressive word list (as opposed to a prosocial or neutral list) and then asked to write short stories were those who not only included more violence and aggression in their stories but also subsequently expressed more interest in

viewing films containing violence when given the choice at the end of the experiment.

Results from the present studies are indicative of this 'priming' effect as far as emotional reactions are concerned. The three negative moods of Sad, Sorry and Clutched Up have all been seen to increase in response to film violence as well as the mood rating of Angry. This indicates that it is not just specifically anger levels that are susceptible to screen violence but that other related negative mood experiences are also under its influence. The increase in overall negative mood experience could have important implications . The effects of experiencing negative moods have been reported in other studies. People who report feeling bad have been seen to remember unhappy events, think more negatively of both themselves and the world in general (Bower, 1981; Johnson & Tversky, 1983; Johnson & Magaro, 1987; Teasdale, 1983; and Wright & Mischel, 1982). Baron (1987) has also reported that participants in an experiment who were induced into an unhappy mood rated fictitious job applicants more negatively than those people who were induced into happy moods. The results of the present studies therefore have important implications for the field of media violence. Media violence could, by association with an increase in negative mood experience, at least temporarily, impede positive social behaviour and interactions.

Thus, in summary, cognitive processes seem to play a vital role in the shaping of emotional responses to screen violence. How viewers perceive and process such violence as well as how they perceive the violence has affected them are both important in determining how they subsequently react to it. Indeed, as has been suggested, individuals are not always aware of the evaluative aspect of an event until or unless some other internal or external event requires that a judgement be made. Conscious emotion is constructed by active cognitive interpretation which is in turn constructed from whatever evidence can be gleaned from physiological feedback either at conscious or subconscious levels. Thus it appears that physiological activity, mood experience and

cognitive interpretation are potentially important factors in determining how people respond to media violence. People appraise the context of the film violence (real vs fake, justified vs unjustified violence), their present mood state is assessed for positive or negative affect, while their physiology has an intensifying effect (either consciously or subconsciously) on the overall emotional response (be it mood experience or actual behavioural action).

The results involving visual imagery ability proved interesting. These suggested that physiology could be susceptible to individual difference factors. As these results also suggested that physiology acts as an intensifier to subsequent emotional experience imagery differences could be important. If physiology is indeed influencing the intensity of the emotional response then uncovering factors which influence it in turn are crucial. Thist set of studies has also suggested the importance of viewer physiology in response to screen violence and confirmed the central role of cognitive interpretation under these circumstances. The fact that imagery ability is seen to play a role in reactions to screen violence is not surprising. Television programming is by its very nature a medium that is directly comparable to the components of imagery: visual fluidity, time and space flexibility and make- believe. These results have suggested that imagery ability is influential in reactions to, and interpretations of different contexts of film violence. The results involving imagery ability have also shown that there is still much work to be done in addressing the antecedents of viewing media violence and that these processes are as important as identifying the consequences of viewing such material.

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Appendices

TOTAL SCORES

(a) Eyes open =
(b) Eyes closed =
Total (a+b) =

VIVIDNESS OF VISUAL IMAGERY QUESTIONNAIRE

Name:

Age:

Male or Female:

Occupation (if student, then give course of study and stage reached):

Visual imagery refers to the ability to visualize, that is, the ability to form mental pictures, or to "see in the mind's eye". Marked individual differences have been found in the strength and clarity of reported visual imagery and these differences are of considerable psychological interest.

The aim of this test is to determine the vividness of your visual imagery The items of the test will possibly bring certain images to your mind. You are asked to rate the vividness of each image by reference to the 5-point scale given below. For example, if your image is "vague and dim" then give it a rating of 4. After each item write the appropriate number in the box provided. The first box is for an image obtained with your eyes open and the second box is for an image obtained with your eyes closed. Before you turn to the items on the next page, familiarize yourself with the different categories on the rating scale. Throughout the test, refer to the rating scale when judging the vividness of each image. Try to do each item separately, independent of how you may have done other items.

Complete all items for images obtained with the eyes open and then return to the beginning of the questionnaire and rate the image obtained for each item with your eyes closed. Try and give your "eyes closed" rating independently of the "eyes open" rating. The two ratings for a given item may not in all cases be the same.

Rating Scale

The image aroused by an item might be:

Perfectly clear and as vivid as normal vision	.....	Rating 1
Clear and reasonably vivid	.....	Rating 2
Moderately clear and vivid	.....	Rating 3
Vague and dim	.....	Rating 4
No image at all, you only "know" that you are thinking of an object	.....	Rating 5

In answering items 1 to 4, think of some relative or friend whom you frequently see (but who is not with you at present) and consider carefully the picture that comes before your mind's eye.

Item		Rating with eyes Open	Rating with eyes Closed
1	The exact contour of face, head shoulders and body.		
2	Characteristic poses of head, attitudes of body etc.		
3	The precise carriage, length of step, etc. in walking.		
4	The different colours worn in some familiar clothes.		

Visualize the rising sun. Consider carefully the picture that comes before your mind's eye.

Item		Rating with eyes Open	Rating with eyes Closed
5	The sun is rising above the horizon into a hazy sky.		
6	The sky clears and surrounds the sun with blueness.		
7	Clouds. A storm blows up, with flashes of lightning.		
8	A rainbow appears.		

Rating Scale
The image aroused by an item might be:

Perfectly clear and as vivid as normal vision	.....	Rating 1
Clear and reasonably vivid	.....	Rating 2
Moderately clear and vivid	.....	Rating 3
Vague and dim	.....	Rating 4
No image at all, you only "know" that you are thinking of an object	.....	Rating 5

Think of the front of a shop which you often go to. Consider the picture that comes before your mind's eye.

Item		Rating with eyes Open	Rating with eyes Closed
9	The overall appearance of the shop from the opposite side of the road.		
10	A window display including colours, shapes and details of individual items for sale.		
11	You are near the entrance. The colour, shape and details of the door.		
12	You enter the shop and go to the counter. The counter assistant serves you. Money changes hands.		

Finally, think of a country scene which involves trees, mountains and a lake. Consider the picture that comes before your mind's eye.

Item		Rating with eyes Open	Rating with eyes Closed
13	The contours of the landscape		
14	The colour and shape of the trees		
15	The colour and shape of the lake		
16	A strong wind blows on the trees and on the lake causing waves		

Rating Scale

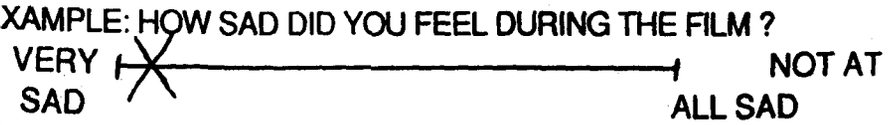
The image aroused by an item might be:

Perfectly clear and as vivid as normal vision	.....	Rating 1
Clear and reasonably vivid	.....	Rating 2
Moderately clear and vivid	.....	Rating 3
Vague and dim	.....	Rating 4
No image at all, you only "know" that you are thinking of an object	.....	Rating 5

Appendix B **Study 1 Rating Scale**

THIS PAGE IS CONCERNED WITH THE FACTUAL (REAL) BOXING FILM CLIP.

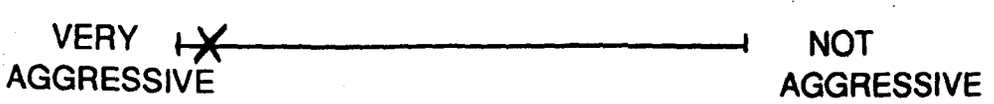
PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT THE CLIP JUST SEEN.
PLEASE INDICATE YOUR ANSWERS BY PLACING AN 'X' ALONG THE LINE.
FOR EXAMPLE: HOW SAD DID YOU FEEL DURING THE FILM ?



INDICATES THAT YOU FELT VERY SAD DURING THE FILM CLIP.

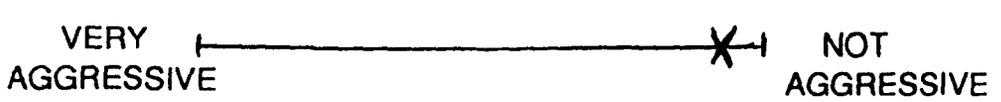
1. HOW VIOLENT DID YOU CONSIDER THE FILM CLIP YOU HAVE JUST SEEN

2. HOW AGGRESSIVE DID YOU CONSIDER THE FILM YOU HAVE JUST SEEN ?



3. HOW 'INVOLVED' DID YOU FEEL IN THE FILM YOU HAVE JUST SEEN

4. HOW AGGRESSIVE DID YOU FEEL DURING THE FILM ?



FOR WHAT REASONS DID YOU OR DID YOU NOT FEEL AGGRESSIVE ?

Didn't feel part of the actual fighting itself. Just felt somewhat scandered, that people actually enjoy this form of sport.

5.HOW VIOLENT DID YOU FEEL DURING THE FILM ? (IE: DID YOU EITHER FEEL LIKE HITTING SOMEONE OR EVEN JOINING IN WITH THE EVENTS PORTRAYED IN THE FILM ETC).

FOR WHAT REASONS DID YOU OR DID YOU NOT FEEL VIOLENT ?

Dont feel like I wanted either boxer to win. Just wanted it to finish.

NAME :
COURSE :
AGE :
SEX :

THE NOWLIS MOOD ADJECTIVE CHECK LIST.

Each of the following words describes a feeling or mood. Please use the list to rate how intense you feel at the moment you read each word.

If you do not have that feeling at all at the time of reading, rate the word one. If, at the moment, you have that feeling as strongly as you have ever had it, rate the word seven. Use ratings between 1 and 7 to rate the degree of the intensity of your feelings if your feelings are not at the extremes.

The scale moves from 1 (not at all) through levels of increasing intensity of feeling, to 7 (the most intense feeling possible). For example, if the word was 'relaxed', then a rating of 1 would mean that you did not feel relaxed at all, whereas a rating of 7 would mean that you felt as relaxed as you had ever felt.

Please write each rating in the space ( ) alongside each word. Work rapidly, your first reaction is best. Work down the first column then go to the next. Please rate all the words. This should take only a few minutes.

Please begin.

1 2 3 4 5 6 7
not at all moderately as strongly as ever before

angry	( )	kindly	( )
clutched up	( )	sad	( )
carefree	( )	sceptical	( )
elated	( )		
concentrating	( )	egotistic	( )
		energetic	( )
drowsy	( )	rebellious	( )
affectionate	( )	jittery	( )
regretful	( )	witty	( )
dubious	( )		
active	( )	pleased	( )
		intent	( )
defiant	( )	tired	( )
fearful	( )	warmhearted	( )
playful	( )	sorry	( )
overjoyed	( )		
engaged in thought	( )	suspicious	( )
		self-centred	( )
sluggish	( )	vigorous	( )
boastful	( )		

Appendix D

Study 3 & 4 Rating Scale

(2)

Subject number: Male/(Female) Age: 19

Each of the following words describes a feeling or mood. Please use the list to rate how intense you feel at the moment you read each word.

The scale moves from **1 (not at all)** through levels of increasing intensity of feeling, to **7 (the most intense feeling possible)**. For example if the word was 'relaxed', then a rating of 1 would mean that you did not feel relaxed at all, whereas a rating of 7 would mean that you felt as relaxed as you have ever felt. Please write each rating in the space ( ) alongside each word. Work rapidly as your first reaction is most accurate. Please rate all the words.

1 2 3 4 5 6 7
Not at all — as strongly as ever before

pleased	(2)	Kindly	(1)	Clutched up	(3)
fearful	(1)	sorry	(5)	elated	(1)
sad	(2)	hostile	(4)	affectionate	(1)
overjoyed	(1)	regretful	(3)	angry	(3)

Please complete the following questions that relate to the scene you have just seen . Your answers should be indicated by placing an 'X' along the line.

For Example: How Sad did you feel during the clip ?

Very sad — X — Not at all sad

Indicates that you felt very sad during the clip.

1. How violent did you consider the film clip to be ?

Very violent — Not at all violent

2. How realistic did you consider the film clip to be ?

Very realistic — Not at realistic

3. How interesting did you find the clip to be?

Very interesting — Not at interesting

4. How involved were you in the film clip to be ?

Very involved — Not at involved

5. How vivid would you consider the violent scenes of the film clip to be?

Very vivid — Not at vivid

Appendix E: Examples of Participants Comments

" I was mostly saddened by the film - that they could have done such things. The fact that it was real plays a part". Female Low Imagers comments on Study One's Real War Film. This participant also shed tears.

"Because It was so real - and that makes me think...". Male Low Imagers response to the question of Why he did or did not feel aggressive concerning Study One's Real War Film.

"Because I wasn't there at the scene - maybe because I thought it was acted for a film". Female Low Imagers response to the question of Why she did or did not feel aggressive concerning Study One's Fictitious Boxing Film.

" Although it was a Cartoon I could still imagine someone else doing the violent things depicted - in fact I can still 'see' these images now as I am writing". Female High Imagers comments on Study Two's Cartoon Film.

" I did not feel any increases in aggression as I knew it was only afictitious film". Male High Imagers comments on Study three's Fictitious Riot Film.

"Though the events were unreal I could imagine them occuring in real life and being shown on the evening news". Female High Imagers comments on Study three's Fictitious Prison Film.

"It was a bit scarey.I actually felt as if I were there as It happened." Female Low Imagers comments on Study three's Real Riot Film.

" It would have been more effective If I knew it wasn't unreal". Female Low Imagers comments on Study three's Fictitious Lift Film.